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RELATIONSHIP BETWEEN THE FEDERAL AVIATION  
ADMINISTRATION AND THE NATIONAL TRANS-  
PORTATION SAFETY BOARD

Y 4. C 73/7: S. HRG. 103-228

Relationship Between the Federal Av...

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION

OF THE

COMMITTEE ON COMMERCE,  
SCIENCE, AND TRANSPORTATION  
UNITED STATES SENATE

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

MAY 27, 1993

Printed for the use of the Committee on Commerce, Science, and Transportation



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# RELATIONSHIP BETWEEN THE FEDERAL AVIATION ADMINISTRATION AND THE NATIONAL TRANSPORTATION SAFETY BOARD

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THURSDAY, MAY 27, 1993

U.S. SENATE,  
SUBCOMMITTEE ON AVIATION OF THE  
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 9 a.m., in room SR-253 of the Russell Senate Office Building, Hon. Wendell H. Ford (chairman of the subcommittee) presiding.

Staff members assigned to this hearing: Carol J. Carmody, professional staff member, and Samuel E. Whitehorn, senior counsel; Alan Maness, minority senior staff counsel.

## OPENING STATEMENT OF SENATOR FORD

Senator FORD. Good morning, ladies and gentlemen.

Today, the Aviation Subcommittee will review the relationship between the Federal Aviation Administration and the National Transportation Safety Board as it affects safety and regulatory policy. The focus of today's testimony will be the statutory and actual relationship between the FAA and the NTSB.

Unfortunately, a tragic event has elevated what would normally be a technical and bureaucratic discussion to a very high personal level. On April 19, 1993, the Governor of South Dakota was killed when the Mitsubishi MU-2B-60 plane he was riding in crashed in Iowa. The subcommittee hopes that the South Dakota officials testifying today will be able to shed some light on this tragedy.

The National Transportation Safety Board is currently conducting an investigation, and I am sure Chairman Vogt will share with the subcommittee as much as he can about the NTSB and FAA's actions.

It is also my understanding that Senator Daschle will be testifying this morning, and I am going to ask him to join the committee and participate as if he was a member of the committee, because he has as much interest in this particular hearing as any member of the committee.

I also want to make the point that I have a great deal of respect for the NTSB and the work they have done. Since the Commerce Committee established the NTSB as an independent agency in 1974, members of the NTSB have testified before this committee on numerous occasions, providing us with balanced, unbiased information. I am confident that today we will receive equally impressive

testimony as we explore the FAA administrative review of NTSB safety recommendations. Mr. Chairman, your comments, please.

### OPENING STATEMENT OF SENATOR HOLLINGS

The CHAIRMAN. The Aviation Subcommittee is holding a hearing today on the safety responsibilities of and coordination between the Federal Aviation Administration and the National Transportation Safety Board. Congress created the NTSB as an independent agency in 1974, responsible for investigating accidents and making safety recommendations based on the determination of the causes of the accidents. The FAA must respond to the NTSB aviation safety recommendations.

A recent crash on April 19, 1993, in Dubuque, IA, killed the Governor of South Dakota and seven others and raised some questions about the role of the FAA and the NTSB in aviation safety. The crash is believed to have been caused by the loss of a propeller blade due to cracking in the propeller structure. An identical loss in an identical aircraft had occurred without loss of life 1½ years ago. Following that incident, the NTSB had recommended that the FAA mandate an inspection technique for all such propellers and followed up with another similar recommendation. While not directly taking the actions recommended by the NTSB, the FAA indicated that it would continue to monitor the issue.

Given the recent accident, the question has been raised whether the FAA should have taken actions more in line with the NTSB recommendations. The FAA does not automatically adopt all the recommendations of the NTSB, although evidence shows that the FAA adopts most of them. The FAA must ensure the highest possible degree of aviation safety. This hearing will examine whether the relationship between the FAA and the NTSB needs to be improved to this end. I look forward to the testimony.

Thank you, Mr. Chairman.

Senator FORD. Thank you, Mr. Chairman. Before closing, I want to stress to this subcommittee that the relationship between the FAA and the NTSB has been a productive one to date. Most of you know FAA is charged with regulating the aviation industry. Regulations, which must be mandated through airworthiness directives when the FAA sees the situation as urgent, are implemented through the normal administrative process. Statute requires the FAA to respond within 90 days to any of the NTSB's recommendations. And their record has been, in my opinion, impressive.

Since its inception, the NTSB has issued 2,880 safety recommendations to the FAA. As of May 1993, this year, the FAA had accepted 87 percent of those recommendations. Of the total number of safety recommendations, 265 were classified by the NTSB as urgent. And the FAA accepted 90 percent of these urgent recommendations.

So I am looking forward to the testimony of both of these groups this morning.

Senator Pressler, do you have anything you might want to say this morning?

## OPENING STATEMENT OF SENATOR PRESSLER

Senator PRESSLER. First of all, thank you, Mr. Chairman, for holding this important hearing. It is sad and disturbing for me that we had to call this hearing—painfully sad, but absolutely necessary. We are here this morning to investigate whether or not the National Transportation Safety Board and the Federal Aviation Administration, together, are performing their safety functions to the fullest extent of the law.

As we all know, tragedy brought us together today. On April 19, near Dubuque, IA, the Governor of my home State and seven prominent South Dakota business leaders lost their lives in what appears to have been a preventable accident.

We are here today to learn from this tragedy. We are here holding the hope that one day we can look back and say our coming together helped prevent future tragedies. We have learned much already. We have learned the NTSB repeatedly urged FAA action based on an NTSB investigation of a prior incident over Utica, NY, which had not resulted in any fatalities. The aircraft involved was the same type of aircraft that crashed in Iowa.

As recently as March of this year, the NTSB urged an examination of similar aircraft in order to prevent what its chairman called a "catastrophic accident." Yet, the FAA did not act.

We have learned also that in far too many cases, the tombstone effect pressures the FAA to take action. In other words, it seems to take a fatal accident to serve as a catalyst for FAA action. That certainly appears to be the case with respect to the Iowa crash. In fact, the FAA admitted to me that it took the Iowa crash, not the NTSB recommendations, to ground similar aircraft. The time is past due for action by this Government to address these issues. We may not be able to prevent all aircraft accidents, however, we must ensure that our resources are used fully and effectively to prevent the preventable. That is not occurring today.

How do we know it is not occurring, Mr. Chairman?

Since the Iowa crash, I have received phone calls and letters from individuals in and outside the aviation industry. Many have expressed strong concerns regarding the relationship between the FAA and the NTSB. Representative of these concerns was a letter I received from C.W. Cole, president of a multinational aviation consulting firm. He stated:

During my 38 years of involvement in aviation, I have seen an increasing antagonism between agencies mandated to cooperate in the best interest of public safety. This attitude must be corrected for the best interest of all concerned. I am also convinced from my many years of involvement in the international aviation field that there is a great lack of communication between the U.S. governmental agencies and their foreign counterparts. More open communications could be very beneficial to our safety efforts. Accidents in foreign countries involving small aircraft produced in the United States and certified for production by the FAA are virtually ignored by our authorities.

We can learn from Mr. Cole and other experts in the field on how best to enforce effectively small aircraft safety. We can learn from those here today. If there is one overriding question that I will ask all the witnesses to think about and answer, it is the following: How can the Federal Government best use its agencies and resources to ensure safety through prevention, rather than reaction?

What can we learn from current law about the relationship between the FAA and the NTSB?

At present, the law clearly puts the ultimate responsibility for aviation safety enforcement on the shoulders of the FAA. The NTSB can only recommend enforcement methods and applications. The NTSB has the authority under the law to provide recommendations to the FAA even if there has not been an accident. However, NTSB recommendations to the FAA come primarily after the fact, after there has been anything from a minor incident to a tragic accident.

The law clearly states that the FAA's duties are to prevent the occurrence or recurrence of accidents. By any reasonable interpretation, this would mean that the FAA should diligently avail itself of all resources available to it to prevent the occurrence or recurrence of accidents.

We cannot rationalize the problem as one of poor communications between the NTSB and the FAA. Under Federal regulations, the FAA must act if an unsafe condition exists. What does this mean?

Technically, this means that if any person demonstrates that unsafe conditions exist in virtually any situation involving airlines or private planes, the FAA is obligated by law to correct these conditions. The FAA even has the authority to ground any aircraft if that is the best way of eliminating the unsafe condition.

If one applies the law to the Iowa accident, the evidence is clear. The NTSB fulfilled its mission to the letter of the law. Based on its investigation of the Utica incident, the NTSB notified the FAA of what it concluded was an unsafe condition—the condition of the propeller assemblies used on the aircraft. The NTSB made it clear that unless the action was taken to correct this condition, there could be catastrophic consequences.

Bear in mind, this warning did not come from a mechanic at a maintenance facility. It did not originate from an inspector who had discovered a flaw in the course of an overhaul. The warning came from our Nation's premier investigatory body on aviation safety, the National Transportation Safety Board. It was not just wide-eyed speculation or a hasty conclusion. It was a reporting of facts a year after the previous incident occurred.

What happened in the FAA?

By any reasonable measure, it seems the FAA should have issued an airworthiness directive to correct the unsafe condition identified by the NTSB. That is what the law requires. Was the matter forgotten on someone's desk? Did it fall off the desk? Did it get stuck in a committee somewhere? Did the unsafe conditions fix themselves?

The only thing we know for certain is that the FAA did not take the action necessary to fix the unsafe condition until eight lives were needlessly lost.

Could it be that the FAA has so completely lost sight of its safety duties and legal requirements that it does not consider a situation or a condition unsafe until it is fatal? No one can be that sinister or misguided. Yet, I must ask this question, because this appears to be what happened in the Iowa accident.

That is what we know of today. What can we do?

We can learn more about the relationship between the FAA and the NTSB. We can ask experts if we are utilizing these two agencies in a manner that best enforces small aircraft safety.

Can this process be improved?

We will begin to answer this question today. But we must be realistic. This committee does not have all the answers. If we did, the hearing would be unnecessary. We cannot find all the answers in the next few hours. More must be done to investigate these issues fully.

This is why I offered legislation to create a blue-ribbon commission, which would have 6 months to study the FAA and the NTSB relationship, and make recommendations to Congress on how to utilize Government resources to enforce effectively small aircraft safety.

Some have suggested my legislation will lead to more regulations, or even a merger of the two agencies. It does not do either. It simply calls on a body of experts to suggest solutions. My bill does not propose specific solutions. If there is any confusion, I have three words of advice: "Read the bill."

Some also have said a commission is not necessary. To those who make such a suggestion, I urge them simply to examine the relationship between the FAA and the NTSB on the Utica and the Iowa incidents. The Iowa crash could have been prevented. How many preventable tragedies will it take to prompt this Congress to seek answers?

For the sake of those who travel in small aircraft, I hope we will not have to wait for new tragedies. Let us begin today by learning from past tragedies. Let us stop reacting to accidents and start preventing them.

Thank you, Mr. Chairman.

Senator FORD. I am very pleased that my former ranking member is here, Senator McCain. And, Senator, for the record, I want to compliment you on your speech to the Naval Academy. I thought it was very, very good.

Senator MCCAIN. Thank you very much.

Senator FORD. Do you have a statement that you would like to make this morning?

#### **OPENING STATEMENT OF SENATOR MCCAIN**

Senator MCCAIN. Thank you, Mr. Chairman. It is a pleasure to be here with you again. I appreciate you and Senator Pressler calling this hearing. I think it is always appropriate to examine how our appointed Federal bureaucracies are doing their job. And I believe that, especially in light of the tragic accident of the Governor of South Dakota and other leading officials of that State, that this is entirely appropriate.

Mr. Chairman, that, as you know, I have 22 years experience as a naval aviator. I empathize with the fact that we need to train pilots properly, that manufacturers need to build the best and safest products available, that maintenance on all aircraft needs to be performed regularly and proficiently, and that airports must be run professionally and safely, and that air traffic controllers must continue to do their jobs professionally.

We will have witnesses here today who will allege that the FAA does not do their job, that the NTSB does not do theirs. Those are comments by Mr. Wolk, who has made how many millions, I do not know, because he refuses to say. And if I am not here, Mr. Chairman, because I have to go chair an Indian Affairs Committee hearing, I would like to ask Mr. Wolk why he will not reveal the extent of the fees that he has received in the last few years. It must be tens of millions of dollars.

He has made the following statements: "General aviation has only itself to blame for staggering product liability lawsuits. One of the problems with the NTSB is their cursory influence and they are typically wrong. Industry wants to be able to lie to the FAA to get and maintain certification." Inflammatory statements, frankly, like that, Mr. Chairman, belie the fact that we have had dedicated men and women working for the FAA, working at the NTSB. I know better than that and the American people know better than that.

The fact is, according to reliable, hard-working people in the industry product liability is the greatest single obstacle to success and survival of the light aircraft industry. Ninety-three percent of aircraft accidents, as we know, are pilot error. Between 1978 and 1987, insurance and legal defense costs per airplane increased from \$1,750 to \$90,000. The Cessna president stated that they could back to production of piston-powered aircraft if Senator Kassebaum's bill on aircraft product liability were passed.

Just in 1986, there was a \$107.3 million judgment from an airplane crash, the largest in aviation history. And the decision and size of the judgment sent shockwaves throughout the aviation industry. The NTSB had ruled that the probable cause of the accident was an inadequate approach by the pilot in command and that he exceeded the decision height.

Mr. Chairman, I think that whatever we do, we have to continue the oversight. And you, as chairman of this subcommittee, have done a magnificent job in many hearings, on oversight of the FAA, the NTSB, and how they are conducting their business. To come here and bash these dedicated people in the fashion that Mr. Wolk does, in my view, is unacceptable. And I want to make the record clear that I appreciate the service of members of NTSB. I appreciate the service and dedication of members of the FAA. And I resent allegations by lawyers who make tens of millions of dollars exploiting these cases.

I thank you, Mr. Chairman. I will try to be back when Mr. Wolk's panel is up.

Senator FORD. Listening to your statement, I hope you do. [Laughter.]

And I might say something to my ranking member, who has already made a statement as to the cause of this accident. I think he had better wait a little bit. I remember the large accident, I believe it was one of our major airlines in Chicago; at first blush it seemed to be caused by a bolt somewhere. And then, when they got through, the National Transportation Safety Board finished their thorough investigation, they found it was not the bolt. And so I have always thought it would be best to let the experts make the judgment without the neophytes making that judgment.

Senator PRESSLER. Well, Mr. Chairman, I certainly am doing that. Everything I have said has been based on what I have been told, and I am waiting for the final report very eagerly.

Senator FORD. Well, final judgment is not yet ready until the report has been completed.

We are very pleased this morning to have the distinguished Senator from South Dakota, Tom Daschle, to make an opening statement, and then I have made public that I have asked him to come join us here on the panel, because he has as much interest in this hearing as any member of the committee.

Senator Daschle.

**STATEMENT OF HON. THOMAS A. DASCHLE, U.S. SENATOR  
FROM SOUTH DAKOTA**

Senator DASCHLE. Mr. Chairman, thank you very much for your kind introduction and your willingness to allow me to participate in this hearing. Let me commend you for calling this hearing, and let me associate myself with the remarks of the Senator from Arizona. I share his view, and I cannot say it any better than he just has. We have suffered a very tragic loss, and obviously, it is going to be a long, long time before our State can recover. They were my friends, they were our leaders, they were the best in business and in politics South Dakota had to offer. So, we mourn their loss, and that tragedy is in part the reason why we gather here this morning.

I think it is important, as we look at that particular experience and related experiences since then, that we not make this issue a political one. It is very important that we look at the facts, ascertain the facts, and come to some conclusion as the chairman has already indicated his intention to do. I think it is also important to do one other thing, and the Senator from Arizona alluded to it.

I have the good fortune to be a pilot, as well. And I must tell you, those people, the FAA and the NTSB who work day in and day out to ensure confidence in our system, need us to send a message as clearly as we can to the American people that we have a safe system in aviation. That by and large it is much safer than any other mode of transportation that exists today. And I commend them for ensuring that safety as we continue to strive clearly a need to continue to improve.

I might also note that it is some of the same critics who find fault with these agencies who lament regulation each and every time we talk about the need for additional regulation to ensure continued safety. General aviation, by and large, is safe. And so I would hope we could do three things at this hearing. I hope we could learn from the past experience. I hope we can ascertain as many of the facts directly related to this experience and apply them to regulation. I would hope that we can understand the relationship better between NTSB and FAA and find ways to maximize efficiency.

And finally, there is a never-ending search for improvement. No one knows that better than the chairman. No one appreciates the need for that better than any pilot. I hope we can act in a constructive manner in that effort this morning, and once again, I thank you for allowing me to appear.

[The prepared statement of Senator Daschle follows:]

PREPARED STATEMENT OF SENATOR DASCHLE

Mr. Chairman, I would like to begin by thanking you and Senator Pressler for inviting me to participate in today's hearing. Your willingness to investigate this issue is greatly appreciated. I should also acknowledge Representative Peterson, whose Government Operations Subcommittee held a hearing on this issue last week at the request of Representative Johnson. Representative Johnson and his staff have also put a great deal of time and energy into this issue, and they deserve to be commended.

On April 19, 1993, a plane carrying the Governor of South Dakota, George Mickelson and seven other South Dakotans crashed near Dubuque, Iowa. There were no survivors, and I know of no other tragedy in recent history that has affected the people of my state so deeply. I know I can speak for all South Dakotans when I say the leadership of the Governor and the other men on that plane will be sorely missed. Their commitment and dedication to our state will not be forgotten.

The fact that Governor Mickelson lost his life in a plane crash is shocking and impossible to understand. What makes this particular tragedy even more difficult to accept is the possibility that the accident might have been avoided. In September 1991, an accident involving a similar aircraft occurred near Utica, New York. Although no one was killed in that accident, the National Transportation Safety Board (NTSB) subsequently recommended that the Federal Aviation Administration (FAA) order mandatory inspections of all Hartzell four-blade propeller hubs with over 3,000 hours of service.

Unfortunately, the FAA did not believe an Airworthiness Directive was necessary and failed to implement the recommendations made by the NTSB. In a reply to the NTSB, the FAA stated that the Utica incident did not warrant a mass inspection, and that the 3,000 hour inspections recommended by the manufacturer should be sufficient. In two subsequent letters the NTSB urged the FAA to reconsider its decision. In its most recent letter on March 4, the NTSB warned the FAA that, "Separation of a blade from a Hartzell HC-B4 propeller on another airplane could result in a catastrophic accident."

Frankly, it is difficult for many of us to understand why the FAA did not choose to investigate these propeller hubs in light of such a stern warning from the NTSB. I realize that hindsight is 20/20, and finger-pointing won't bring back those who lost their lives in this tragic accident. Nevertheless, I am convinced that something went terribly wrong. It is, therefore, imperative that we examine the relationship that exists between the NTSB and the FAA so that we determine if there is something more that we and these agencies can possibly do to prevent another senseless accident from occurring in the future.

I can only hope that at the conclusion of today's hearing we will be closer to putting this accident behind us. It is important that we begin to focus on where we go from here. We must have the desire to learn from our mistakes and the courage to move on. I look forward to working with the Senate Subcommittee on Aviation to find a constructive solution and again thank you, Mr. Chairman, for allowing me to take part in today's hearing.

Senator FORD. I have no questions of the Senator. Does anyone else have any questions?

Senator MCCAIN. I thank the Senator from South Dakota.

Senator FORD. The Senator is welcome to join us here at the dais and participate in this hearing as if a member of the committee.

The next witness will be the Honorable Tim Johnson, U.S. House of Representatives, from South Dakota. Tim, we are delighted to have you this morning and look forward to your testimony.

STATEMENT OF HON. TIM JOHNSON, U.S. REPRESENTATIVE  
FROM SOUTH DAKOTA

Mr. JOHNSON. Thank you, Mr. Chairman and members of the committee. I commend you and thank you for holding this very timely hearing and for allowing me to make a brief statement this morning.

As Senator Daschle has alluded to, the tragic air crash taking the life of the Governor of South Dakota and seven other outstanding South Dakotans has had a profound effect on all South Dakotans and people throughout the region. We are a very small State. I am the State's only Member of the House of Representatives. And as a consequence of that, perhaps I think the entire State feels a personal sense of loss due to this tragic accident.

The last thing that we need, as Congress examines the National Transportation Safety Board and the FAA and their interrelationship, is political grandstanding or headline grabbing on the part of the delegation or a tabloid press mentality on the part of the media. This is a serious matter. We do not need sensationalism but we do need reasoned, careful analysis. And so we make sure that these two agencies are indeed performing their functions to the best extent possible, and if there are any shortcomings that they are corrected in a proper manner.

I think that there are some legitimate questions that are appropriate for this committee as well as its counterpart on the House side to pursue having to do with what criteria or methodology the Federal Aviation Administration uses in determining cost-efficiency factors when they reject recommendations of the National Transportation Safety Board. I think that that can be pursued and looked at.

I think that one issue that is of particular interest to me, and I think should be at least pursued, is the question of whether the National Transportation Safety Board recommendations which are rejected by the FAA and, as has been noted, somewhere around 90 percent of those recommendations are, in fact, accepted by the FAA but on those rare occasions when they are rejected, should those recommendations be promulgated to airplane owners and operators so that they are aware of the concerns of the NTSB even if the FAA has chosen not to mandate any particular action. I think it is worth pursuing that.

There are some who would believe that if the State of South Dakota had known of the NTSB's concerns about the engine, the propeller hub, and as you have properly noted, it is premature to single that out as necessarily the cause of this accident, although the preliminary indications would point in that direction, but there is an argument that could be made that if the State of South Dakota had known about that even without a mandate from the FAA, perhaps they would have examined that propeller hub, perhaps the accident could have been avoided. We do not know that, but that is the purpose of the hearing, to examine whether there are options that we can look to that can further tighten air safety in this country.

As Senator Daschle has mentioned, I think the United States can be immensely proud of its air safety record. Air transportation is a very safe mode of transportation, and America's air safety record is the best in the world. I am pleased with the work of the NTSB and the FAA. I think that they have done a very good job. But as with any agency, it is appropriate from time to time to examine whether some modifications or some changes could be helpful to make the world's best system still a bit better, and that is the purpose, I believe, of this hearing. I know that it is on the House side.

And so I thank you for this opportunity to share a couple of thoughts with you. I am looking forward to working. I know the House side is looking forward to working with this body.

I am going to have to excuse myself from the testimony of this hearing. As I am sure the chairman and the members understand, we are taking up a reconciliation matter on the House side which is going to require my attention. And so I am going to have to excuse myself with that. But I do look forward to reading all of the testimony and working very closely with the members of this committee.

Thank you.

Senator FORD. I wish the Congressman would be very careful that we do not exercise the judgment of applying too many sin taxes. [Laughter.]

Mr. JOHNSON. There are sins enough without taxing them all. [Laughter.]

Senator FORD. Thank you very much, Congressman. It is a delight to have you and we look forward to working with you in the future.

The first panel this morning will be the Honorable Carl W. Vogt, Chairman, National Transportation Safety Board, and Anthony J. Broderick, Associate Administrator of Regulation Certification, Federal Aviation Administration. Gentlemen. If the gentlemen will come forward, we would be delighted to hear your testimony.

Mr. Vogt, however you wish to do it, and Mr. Broderick, if you want to submit your statement for the record and highlight it, it will be included in the record in full. If you want to take your whole statement and read it, that is your prerogative. So, I would hope brevity would apply this morning, and we have more opportunity to ask questions. But however you wish to do it.

Mr. Vogt.

#### STATEMENT OF CARL W. VOGT, CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Mr. VOGT. Thank you, Mr. Chairman, members of the committee. What I would like to do, with your permission, Mr. Chairman, is simply go over a brief synopsis of my statement, and I will try to be brief.

Senator FORD. We will include your statement in the record in full.

Mr. VOGT. Thank you. I would just like to point out what you already know, that the NTSB does not act in isolation on its accident investigations. The FAA is a party to our investigations and almost always exercises that prerogative to participate with us. As you also know, although the Safety Board considers the real world impact of its recommendations, there is a different mandate under which the FAA operates. It must perform a cost-benefit analysis to determine the impact on industry and the traveling public of regulations beyond safety which we, of course, consider to be primary in our mandate.

In my statement, I go into some detail on the background of the Utica accident, our investigation, and our recommendations to the FAA. Rather than go through those now, because I believe they are well-known to the committee, I would be happy to go into those is-

sues in the question-and-answer period, if you prefer, Mr. Chairman. In the interest of brevity, I will put that off.

We are delighted to be here. Speaking for the NTSB that we welcome scrutiny from the Congress and the public at any time. We welcome the opportunity to speak to these issues, and we want everybody to know how we operate, how we relate to the FAA, and to the other modal administrations with whom we deal. And we are always pleased to have the opportunity to talk about those issues in any forum that this Congress determines is appropriate.

[The prepared statement of Mr. Vogt follows:]

#### PREPARED STATEMENT OF CHAIRMAN CARL W. VOGT

Good morning Mr. Chairman and members of the Subcommittee. The National Transportation Safety Board (NTSB) welcomes this opportunity to appear before the subcommittee today.

The NTSB was established in 1966 as an independent, nonregulatory agency "to promote transportation safety by conducting accident investigations and by formulating safety improvement recommendations." In 1975, the Safety Board's independent status was strengthened and it was made totally autonomous from the Department of Transportation (DOT). And for the first time, the Secretary of Transportation was required to respond to safety improvement recommendations within a specified period of time.

In the case of aviation, the Safety Board is responsible for the organization, conduct and control of the investigation of accidents involving civil aircraft within the United States, and is the official U.S. representative in accidents having U.S. interests and occurring in other countries.

The Board does not work in isolation however, and the Federal Aviation Act of 1958 provides for the appropriate participation of Federal Aviation Administration (FAA) personnel in these investigations. The FAA almost always uses this prerogative and actively participates in the on-scene phases of the investigations whether they involve a major air carrier accident or a non-fatal general aviation accident. The communications between the Safety Board staff and the FAA staff begins during the initial stage of the investigation and continues as the post on scene activity progresses. Because of their participation, FAA staff are usually aware of the accident circumstances and the direction of the Safety Board's investigation much before the formal communication of the safety recommendation process.

If the investigation discloses that the accident resulted from an airworthiness problem that the Board believes could occur on other aircraft and cause a catastrophic accident, the Board may issue a safety recommendation to the FAA for immediate action. The proposed action could be an inspection of similar aircraft within a short time period or even before further flight. In some cases, the FAA recognizes that the situation warrants immediate measures and FAA staff might already have a telegraphic airworthiness directive in preparation or ready for release before the issuance of the Board's recommendation. In other cases, the FAA may not be convinced that immediate actions are needed and the Board will attempt to prompt FAA action with a recommendation that is classified urgent action. This is contained in a formal letter to the Administrator. The FAA generally responds quickly to our recommendations, and about 90 percent of the Board's urgent recommendations are acted upon favorably by the FAA.

In most investigations, the Safety Board observes conditions that could be improved upon in the interest of safety, whether they involve the airworthiness of a particular aircraft, operational procedures, the National Airspace System, air traffic control or other factors. Many of these conditions the Safety Board and staff do not view as an immediate threat to safety, but are significant enough to warrant future actions. The Safety Board will then issue safety recommendations to the Administrator in a more routine manner during the continuing investigation or at the time of consideration of the final report. Safety recommendations may be categorized by the Board as "priority" or "longer term." The latter category, "longer term," is usually assigned for those actions that the Board believes will require changes in FAA programs, funding priorities or extensive research and development; actions that by their nature cannot be accomplished quickly.

Irrespective of the category assigned to a safety recommendation, the FAA modal administrator must acknowledge the recommendation and inform the Board of actions or intended actions within 90 days of receipt of the Board's letter, as prescribed in the Independent Safety Board Act. During this 90-day period and there-

after, informal communication between key Safety Board staff and FAA staff is ongoing. The formal communication continues when the Safety Board receives and evaluates the FAA's formal response to the recommendation. The Safety Board may deem the FAA actions or intended actions as acceptable or unacceptable, and this evaluation will be included in subsequent correspondence to the FAA. If the Board believes that the FAA action fails to meet the intent of the safety recommendation, the Board will attempt to urge the FAA to reconsider its position through both informal staff discussions and formal communication. This will continue until the Board believes that acceptable action has been taken, or, if not, the Board has exhausted its persuasive arguments.

While 91 percent of our "urgent" recommendations are implemented, overall about 83 percent of all Board recommendations are eventually acted upon favorably by the FAA. The remaining 17 percent are classified as unacceptable. The subject matter is retained in an automated file and if the Board finds further substantiation for the recommended action as a result of subsequent accidents, the Board will issue a new recommendation presenting these facts and reiterating the need for action.

Although the Safety Board must consider the real-world impact of its recommendations, lest the recommendations be ignored, safety is our primary statutory mandate. The FAA, on the other hand, also has the statutory authority to spend tax dollars and mandate others to spend their dollars, and the cost and potential public impact must necessarily be a more significant factor for the FAA in its decisions than for the Board.

The Safety Board believes that this, at least in part, was the case in the recommendations involving the Hartzell propeller hub failure on the Mitsubishi MU-2B-60 airplane.

On September 27, 1991, a Mitsubishi MU-2B-60 of Canadian registry, sustained substantial damage when a propeller blade and part of the hub assembly separated in flight near Utica, New York. The airplane was climbing through 19,000 feet when the pilot felt a strong vibration, followed shortly by a loud "bang." The vibration increased and became so severe that the pilots experienced considerable difficulty controlling the airplane. Despite this difficulty, the airplane was successfully landed at the Utica airport with no injuries.

During subsequent metallurgical examination of the recovered portion of the airplane's Hartzell model HC-B4 propeller, the Safety Board found that loss of the propeller blade was the result of fatigue cracking that initiated from the inside diameter surface of one of the arms of the propeller hub. The examination disclosed that the inside diameter surface of the separated hub arm contained scratch marks that extended over about one-half of the hole wall circumference and from the fracture surface to a position slightly inboard of the plane of the fracture. The fatigue origin area was located within this area of scratches.

Examination of the three remaining intact arms after removal of the pilot tubes disclosed evidence of scratch marks similar to those found on the separated arm.

The separated propeller hub was manufactured in 1977 and was overhauled in 1983 and 1988. Records from the first overhaul are not available. The records from the second overhaul indicate that two of the four pilot tubes had been replaced at that time. Because similar scratches were found on all four hub arms, the Board believed it unlikely that the scratches were introduced during the more recent overhaul. Also, the scratches extended inboard of the position contacted by the pilot tubes, and it is unlikely that removal or insertion of the tubes could create such damage. The Safety Board believes it possible that the scratches were produced during original manufacturing of the hub.

The Safety Board noted that the Hartzell HC-B4 propeller hubs and those of similar design, a total of 35,000 hubs, some of which have been in service for 30 years and have accumulated more than three times the operating life of the failed hub, have had no previous hub failures. Nonetheless, the Board was concerned that the fatigue crack in the failed hub might have been attributable to scratches that were present since the time of manufacture and that other propeller hubs in service could have similar damage and thus be susceptible to failure. The Safety Board also recognized that the inspections prescribed for the propeller hub in the Hartzell service manual were not adequate to detect the initiation of a crack in the area noted. The Board noted that an inspection technique that would require removal of the hub-to-blade pilot tubes from the hub arms would be costly and would present some risk of introducing new damage during the disassembly and reassembly process. The Safety Board believes that an inspection method, possibly using ultrasonic technology, could be developed to detect propeller hub arm cracks without necessitating removal of the pilot tubes.

Because of the concern of possible hub failures involving the Hartzell propeller and the knowledge that service manual inspections were inadequate, the Safety Board issued three safety recommendations to the FAA on August 12, 1992.

Safety recommendation A-92-81 asked the FAA to develop, with Hartzell's assistance, an inspection method capable of detecting hub arm cracks and to issue an airworthiness directive (AD) requiring that HC-B4 hubs with over 3,000 hours be inspected. Safety recommendation A-92-82 asked the FAA to mandate repeated inspections of the affected hubs, if so warranted by the results of the initial inspections. Safety recommendation A-92-83 asked the FAA to determine if other similarly designed Hartzell propeller hubs should also be inspected for cracking.

The FAA responded to the recommendation letter on October 26, 1992, indicating that the staff was reviewing the service history of the Hartzell propeller hubs to determine the magnitude of the problem and what changes are needed to the service manuals. Based on the FAA's response, which failed to indicate that it was actively pursuing the development and implementation of a practical inspection program, the Safety Board classified the FAA action as unacceptable and reiterated its concern in a January 6, 1993, letter to the Administrator.

Another letter from the FAA was received that same day, January 6, 1993, that amplified the prior October response. In this letter the FAA stated that, while agreeing with the intent of the safety recommendations, there were no immediate plans for issuance of an Airworthiness Directive based on the service history showing millions of flight hours of over 28,000 Hartzell steel hubs with only one failure. The FAA noted that Hartzell was conducting extensive analysis to verify propeller hub stress levels. The Safety Board on March 4, 1993, once again noted that the FAA was not responsive to the recommendations and encouraged the FAA to develop an inspection method that could effectively detect flaws in the propeller hub without removal of the pilot tubes. In that letter, the Board noted that separation of a blade from a Hartzell HC-B4 propeller on another airplane could result in a catastrophic accident.

The Safety Board's recommendations and the FAA's responses took on additional interest following the April 19, 1993, accident involving another Mitsubishi MU-2B-60 airplane operated by the State of South Dakota.

The airplane had departed Cincinnati, Ohio and was en route to Sioux Falls, South Dakota, with two pilots, three businessmen, Governor George Mickelson, and two South Dakota State Commissioners aboard when the pilots reported an emergency situation. The flight was given clearance to the Dubuque, Iowa, airport. The airplane crashed about ten miles south of the airport, striking a silo and catching fire. All eight occupants received fatal injuries.

As stated previously, the Safety Board is mandated to investigate civil aviation accidents only. This airplane was a public use aircraft owned by the State of Dakota; however, the Safety Board was asked by the State of South Dakota to conduct the accident investigation. It was immediately evident that a propeller blade from the airplane's left engine had been lost in flight. Upon closer examination by the Board's metallurgist, it was found that the characteristics and location of the propeller hub arm fracture were nearly the same as the previously noted hub failure in September 1991. The fracture was indicative of fatigue. The cause for fatigue initiation and propagation is still under investigation. Both of the failed propeller hubs had similar operating time since manufacture.

The second Hartzell HC-B4 propeller hub failure prompted more positive action from the FAA. A priority letter Airworthiness Directive was issued on April 28, 1993, requiring that all Hartzell HC-B4 propellers having 3,000 hours or more operating time installed on Mitsubishi MU-2B-60 airplanes be inspected within the next ten hours time in service. The inspection requires that those affected propellers be removed from the airplane and disassembled, and that the hubs with pilot tubes in place be sent to the Hartzell facility for further disassembly and inspection. If the inspection is satisfactory, new pilot tubes are inserted by Hartzell and the hub assembly is sent back to the operator.

The Board understands that about 80 MU-2B-60 airplanes are operating in the United States. Nearly 200 propeller assemblies are immediately affected by the inspection requirement. So far, about 40 percent of these propellers have been inspected. One of the hubs that was inspected had a crack indication that is currently being evaluated, and two propeller hubs have been damaged in the inspection process and had to be replaced.

The Safety Board concurs with the need for the action taken by the FAA as a result of the April 19, 1993 accident.

The Safety Board believes that, until it can be shown that the MU-2B-60 installation of the Hartzell HC-B4 propeller is unique, further actions must be considered.

The Board strongly believes that the FAA and Hartzell must expeditiously develop a practical inspection program that can be applied to those airplanes.

NTSB accident reports and safety recommendations emanating from the accident investigations receive significant attention in the public and the private sector. In fact, it is the NTSB's policy to make public information about its investigations and safety recommendations to the maximum extent possible.

For accidents investigated by the Safety Board, a public docket is created that contains factual information and supporting documentation and the NTSB's report reflecting the determination of probable cause.

The NTSB meetings on major accident reports are attended by public and private persons with an interest in the subject matter, and the safety studies and safety recommendations generated by those reports are widely reported in the print and broadcast media.

In an effort to broaden awareness of Safety Board activities, news releases are also issued on all major reports, and free subscriptions to a monthly NTSB News Digest are made available to the public.

The relationship between the Safety Board and the FAA is one that has evolved over the years from what some felt was historically adversarial, to one which is now more cooperative. Areas of disagreement over safety recommendations remain and are likely to do so in the future.

That concludes my statement and I would be pleased to answer any questions you may have.

Senator FORD. Mr. Broderick.

**STATEMENT OF ANTHONY J. BRODERICK, ASSOCIATE ADMINISTRATOR OF REGULATION AND CERTIFICATION, FEDERAL AVIATION ADMINISTRATION**

Mr. BRODERICK. Mr. Chairman, I appreciate the opportunity to appear before you. I would like to put my statement in the record and very briefly, I think, using a visual aid here give you an idea of the difficulty that we faced with the NTSB recommendation after the Dubuque incident and perhaps give the committee a feel for the technical problems that prevented us from immediately adopting their recommendation.

This is one of the four hub arms on a Mitsubishi propeller. This is a steel forging, and if you can imagine a propeller attached here and then the others: one to the left, one to the right, and down below, you are looking at the nose of an airplane. And I am behind it where the engine would be.

The crack that we are talking about that was found in the accident airplane occurred in this massive steel forging. You cannot see through it by taking it off. What you have to do is look down into the hole that is left when you disassemble the propeller but leave the pilot tube, as it is called, in. This is a pilot tube that has not yet been inserted. This is a press fit. In other words, it is fit in there with interference. It takes, to remove this, a press that has somewhere between a couple of tons and maybe 50 tons capacity to pull it out.

We are looking for a crack that is on the inside of this forging, inside this hole, beneath this tube. The crack is not readily detectable by x rays, we have demonstrated just as recently as this week. It is not readily detectable by any of the modern electronic things. The only device, we think, that has a potential for detecting this crack is an ultrasonic device, which we are currently working on developing.

Approximately 114,000 of these hub arms have been manufactured since the early 1960's for use on some 35,000 propellers of three, four, or five blades. The three- and four-bladed propellers are

identical with respect to this particular piece. In other words, the crack that was found to have occurred on the Utica accident airplane and in the Dubuque tragedy is something that appears here in this fitting, on one of 35,000 propellers that have been built.

Never, before the Utica incident, had we had this kind of crack. In 60 million flight hours the record had been perfect with regard to cracking of this fixture. So, that is why the NTSB and the FAA specialists and the propeller specialists that looked at the Utica incident thought that this was something unusual, something unique, certainly not something that was a systemic problem.

Had this occurred in 1962 or 1963 when the propeller was first introduced without 60 million hours of perfect service, we may have had a completely different view of a design or manufacturing flaw. But after 30 years of perfect service you do not assume that there is a systemic problem. And in fact, there clearly is not, as our inspections to date have shown.

What we are doing is after we develop a pattern of failure—by the pattern I mean two identical propellers, or almost identical, manufactured at different times, failing in very similar ways—we immediately directed the inspection within 10 flying hours of every other one of those propellers. That is the Mitsubishi MU-2B-60 model. We have already inspected some 123 of those propellers that were OK. One has been found with a crack in it. So, that makes three propellers out of the MU-2B-60 fleet, which is the highest loaded fleet that we have.

We are trying very hard, using the best people that we can get hold of, to develop the nondestructive testing technique that NTSB recommended. We are doing flight tests, we are doing laboratory tests, and we are doing what amounts to disassembly inspections on propellers to assist us in developing that technique. As soon as we are successful, if we are, we will apply it not only to the Mitsubishi aircraft, but as NTSB recommended, to the entire fleet.

If we are not successful, we are going to have to go to a different inspection, one like we have mandated for the MU-2B, which is an inspection that is done at the rate of 5 to 10 propellers a day. At that rate, for 35,000 propellers, you see, it is not right now a practical solution to the problem. Even for the only 6,000 four-bladed propellers that exist, you are talking 2 or 3 years' worth of inspection at the current rate.

Mr. Chairman, I will close with that, just to reassure you and members of the subcommittee that we are doing everything we can do develop the techniques that NTSB has recommended that we apply. As soon as we develop them we will apply them. If we cannot develop them we will have to develop alternatives that may be more difficult and more lengthy in terms of the time which it will take to go through the entire fleet.

Thank you, sir.

[The prepared statement of Mr. Broderick follows:]

#### PREPARED STATEMENT OF ANTHONY J. BRODERICK

I welcome the opportunity to appear before the Subcommittee today to discuss the relationship between the FAA and the NTSB concerning, in particular, the way in which FAA responds to safety recommendations proposed by the NTSB. I understand that the Subcommittee's interest in this area was heightened by the tragic accident on April 19 of a Mitsubishi MU-2B-60 aircraft in Dubuque, Iowa.

Any review of the FAA and NTSB relationship must, of course, consider the two agencies' missions. The NTSB was established by Congress to investigate accidents, make determinations of probable cause, and to make safety recommendations to the regulating agency. In 1974, Congress acted to make the NTSB an independent agency to help assure the independence of its accident findings and safety recommendations. FAA is charged by the Congress with the job of promoting the safety of our air transportation system through regulation, surveillance, and enforcement. One way that we fulfill our safety responsibilities is through the opportunity to benefit from the NTSB accident findings and the recommendations they make to us. The U.S. aviation safety record, which continues to improve in all segments of air transportation, reflects the fact that concerns for the safety of our Nation's air travelers occupies the highest priority with both agencies.

In my current position, I have worked closely with NTSB officials for more than a decade. Today's working relationship is, in my views a positive and constructive one. I firmly believe that we have as good a working relationship today as we have ever had with the NTSB. Recently, FAA Acting Administrator Del Balzo met with NTSB Chairman Vogt to discuss ways we could build on that relationship, and continue to improve interaction between the agencies.

We recognize that we benefit from many of the technical recommendations made by the NTSB, and we carefully weigh all safety information they provide. In fact, the historical record of FAA's response to NTSB recommendations shows the value we place in their input, with more than 80 percent of "closed" NTSB recommendations having been adopted. We have adopted more than 90 percent of their Class I (urgent) recommendations. Nevertheless, there are—as there should and will be—times when we differ on a particular course of action that should be taken by the FAA. Despite these differences, we are able to find common ground more often than not, and the safety dialogue between the two agencies does advance the safety interest of the traveling public.

To ensure timeliness in responding to NTSB recommendations, we have established a process for tracking each recommendation. We have consistently met the 90 day requirement for initial response to an NTSB recommendation. We also continue to track and monitor the status of FAA review and action on each recommendation until final action is taken by the agency.

A recent review of our responses to NTSB recommendations shows that this control process is working well, with FAA actions needed to close out NTSB recommendations falling within the prescribed timeframes. More specifically, the DOT Inspector General found that, except in the case of the lowest priority recommendations (Class III (long term)) where we exceeded the 5 year timeline by an average of 6 months, the FAA's time to close out NTSB recommendations averaged less than the timeframe the NTSB assigns to each category. Class I recommendations call for close-out in 1 year; on average, it has taken FAA 7 months. Class II recommendations call for close-out within 2 years; FAA has averaged 22 months.

In view of the Subcommittee's expressed interest concerning the FAA's response to the NTSB Class II recommendation associated with the Hartzell propeller, let me briefly touch on that subject.

On September 27, 1991, a Canadian-registered Mitsubishi aircraft, equipped with a Hartzell HC-B4 propeller, lost a propeller blade in flight. The aircraft sustained severe damage, but was able to land safely in Utica, New York.

NTSB subsequently wrote the FAA on August 13, 1992, making recommendations concerning the Hartzell propeller. In its letter, the NTSB indicated that it had found that loss of the propeller blade was the result of fatigue cracking that started from the inside surface of the propeller hub arm. The NTSB had found scratches inside this area, and believed that these scratches may have provided an origin point for the cracking, and that they may have resulted from the manufacturing process. Accordingly, the NTSB recommended that the FAA, with the assistance of Hartzell, develop a non-destructive inspection technique to detect the type of crack believed to have resulted in loss of the propeller. The NTSB recognized in its letter that an inspection that required disassembly of the propeller and pilot tube could result in damage to the hole wall. The development of a non-destructive inspection technique would be designed to permit the inspection with the pilot tube in place, to avoid this possible maintenance-induced problem. The NTSB also recommended that FAA take action to require the inspection of Hartzell HC-B4 propeller blades with 3,000 or more hours, either at their next overhaul or annual inspection.

The FAA responded to the NTSB's August 1992 recommendations on October 26, 1992, advising the NTSB that we were reviewing the service history of the Hartzell propeller hubs to determine the magnitude of the problem. We also advised them that we were reviewing the service manuals to determine what changes, if any, needed to be made. Although we failed to include this information in our response

to the NTSB, we had already begun discussions with Hartzell to seek to develop a non-destructive inspection technique for the propeller hub.

On January 4, 1993, we followed-up on our earlier response to the NTSB's recommendations. We informed them that, while we agreed with the intent of their recommendations, we did not believe that airworthiness directive action was necessary, at that time, to require the inspections NTSB had recommended. We also informed the NTSB that Hartzell Propeller analysis had shown that stress levels of the propeller area in question were acceptable, and that no metallurgical discrepancies were found in the hub material. We also said Hartzell would continue its investigation and would provide us with its findings. Further, FAA would continue to monitor the service history of the propeller hub design.

In response to our January 4 letter, the NTSB wrote the FAA on March 4, 1993, reiterating its view that an appropriate inspection technique, not requiring disassembly of the HC-B4 propeller pilot tube, be developed and applied. The NTSB also noted concern that the FAA had not seen a need to review the design and fabrication of other types of Hartzell propellers using the same type of hub design.

Although the correspondence between the agency and NTSB highlights the issues and some of the background, it does not fully depict our reasoning or the nature of the activities we had underway within the agency. Perhaps most important is the fact that, at the time of the Utica accident, there had been no other comparable Hartzell blade fractures for either that or any of the other similar hub designs despite three decades of use and some 60 million hours of service by 110,000 propeller hub arms.

One action we took was to review all the known service difficulty history on the Hartzell HC-B4 propeller hub design, which totals over 6,000 4-bladed propellers. We also contacted several propeller overhaul shops to gather data on any known cracking problems with this propeller design. Thousands of propeller hub pilot tubes had been pulled out during normal scheduled maintenance work, and not one crack had been reported in the hub arm failure area.

The Hartzell propeller steel hub type design configuration includes approximately 35,000 propellers for all models in service worldwide. The Hartzell steel hub design has over 60 million flight hours to date. The HC-B4, the specific model involved with the Utica accident, has been in service for 20 years with millions of flight hours accumulated.

In light of the successful performance history, in addition to the finding that no cracks had ever been reported in the area of concern in the Utica accident, it appeared to the FAA that the Utica hub failure was an isolated case. We felt it would not be appropriate, based on that information, to issue an airworthiness directive (AD) until an effective inspection could be developed that would not require the removal of the pilot tube. Such an AD would have been a labor-intensive and costly effort, resulting in substantial downtime for aircraft owners. Most important, however, was our concern regarding the possibility of maintenance-induced problems from these thousands of disassembly operations. The safety record we had on the Hartzell propeller, in our view, simply did not justify that type of action. Instead, we continued to work with Hartzell to develop a satisfactory non-destructive inspection procedure along the lines recommended by the NTSB. Many methods, including x-ray, eddy current, and ultrasonic techniques, were reviewed and found to be unusable. Hartzell had concluded that a non-destructive inspection with the pilot tube in place was not possible with current technology. That remains the case today.

The effort to implement the intent of the NTSB recommendation, without introducing new airworthiness problems, was still ongoing when the Dubuque accident occurred on April 19, 1993. This tragic accident involved a Hartzell HC-B4 propeller of the type involved in the 1991 accident. The blade fracture appeared similar based on early investigation; the airplane was an identical model. For the first time, then, there was an indication that the earlier blade problem might have been other than an isolated aberration. Accordingly, on April 28, we issued an emergency AD requiring inspection of the inner surface of the propeller hubs with the pilot tube removed. The AD included the unusual requirement that the disassembly of the hub and inspection must be done at the Hartzell factory laboratory rather than at a certified repair facility. This extraordinary measure was taken in an attempt to minimize the possibility of maintenance-induced error, and maximize speed and consistency of data collection.

At this point, we still cannot account for the cause of the fractures. Engineering data does not indicate that the area of the fractures is subjected to stress loads that would be a likely cause. Analysis is on-going to revalidate the stress load data. Actual flight tests are also being conducted this week. We continue to work with the NTSB on this issue, and are a participant in the accident investigation, which they oversee.

In closing, Mr. Chairman, I can assure you that we are working closely with the NTSB on this issue, and that we do so on other safety issues as well. We also are continuing our work with Hartzell.

That concludes my prepared statement, Mr. Chairman. I would be pleased to respond to any questions you may have at this time.

Senator FORD. Thank you very much. Are you saying to me, Mr. Broderick, or to the committee, that to make this investigation now going on it is almost impossible for you to see all of the airplanes that are similarly assembled or designed?

Mr. BRODERICK. The only way that we know to inspect for cracks successfully today is using a technique that requires us to pull this tube out and literally disassemble it and use a thing called "magnetic particle inspection," a nondestructive technique.

Doing that at the present rate of 10 propellers per day for 35,000 propellers is obviously out of the question. We would have to develop a series of laboratories, repair stations that have the capability to do this and make sure that they do it properly because there is a risk, as NTSB has pointed out to us and we agree with, of inducing problems in reassembly of these propellers. So, it has got to be done very carefully.

But today, we have no other technique to apply than the one that we are using which requires 1 day for 10 propellers in one facility.

Senator FORD. Mr. Vogt, have the budget problems of the past decade hampered the NTSB's ability to make safety recommendations or investigate accidents?

Mr. VOGT. Senator, back in the early eighties, the size of the agency was drastically reduced due to budget constraints which had a direct impact on our ability not only to respond to accidents, but to respond in a timely manner.

I have testified four times on our appropriations and our authorization requests about the current administration's budget. We are hopeful that we will be able to maintain our same level of activity.

It really gets into the quality question, because we do not have a lot of employees. As you know, we are a small agency and I think we probably have the highest percentage of engineers and Ph.D.'s on staff for our size than any other agency in the Government.

So, when we cut down on small numbers of those people, even nine as proposed in the administration's budget for next year, translates into our ability to turn out a quality product and particularly a timely product. My priority is our timeliness and getting our recommendations out as quickly as possible.

We are going to deal with the personnel cuts through attrition. In the early eighties, staff cuts did impact agency operations. And we hope that this new round of cuts will be minimal this time.

Senator FORD. Can you comment on the—I believe it is 17 percent of the National Transportation Safety Board's safety recommendations that are classified as unacceptable? Is there a pattern in the recommendations that are not acted upon by the FAA?

Mr. VOGT. No, sir. There is no particular pattern. We have four open, unacceptable class I recommendations at the FAA and 55 open, class II, 13 of which involve airworthiness issues.

In doing research in preparation for this hearing, I found that since 1987, there are three open unacceptable urgent class 1 recommendations involving part 91-type operations at the FAA.

In the 26-year history of the Board, there have been five urgent class 1 small aircraft recommendations in an unacceptable status. So, the numbers have been relatively small.

Senator FORD. Excuse me. Is there only five unacceptable in 26 years?

Mr. VOGT. Involving small airplanes.

Senator FORD. What do you call a small airplane?

Mr. VOGT. Well, FAA regulations define a "small airplane" as one weighing less than 12,500 pounds—maximum takeoff weight—and certified under 14 CFR 23. In small airplanes, you are talking about planes that are not used in transport service or scheduled transport service.

If you get into corporate jets and scheduled commuters, you move into a larger category of aircraft with more seats. I am not quite sure what the Senator is referring to when he talks about small aircraft.

Senator FORD. Well, I travel in a 172 or a 182.

Mr. VOGT. That is a small aircraft.

Senator FORD. Yeah, we call that real small. And maybe an Aztec or—what do you call them—Barons. That is about all we can get in the hills and valleys in Eastern Kentucky. So, I consider that—when I get into a Baron I feel like I am in a big airplane flying into the mountains.

I noticed in your testimony, Mr. Chairman, that the National Transportation Safety Board did not originally investigate the Governor's crash since it was public aircraft involved.

Mr. VOGT. Yes, sir.

Senator FORD. I am pleased the State of South Dakota asked you to conduct an accident investigation. Should your mandate be broadened to include public aircraft other than military? That gets back to the budget problem, and the economic consequences.

Mr. VOGT. I am not personally aware of any shortcomings in the investigation of public or military aircraft accidents. And certainly, we are taxed to the limit at this point. We are nevertheless ready to help in this kind of situation when asked.

At this point in time, I have not heard the case made for the necessity or the desirability for such a broadening of our charter. But should that case be made in the Congress, then I would certainly request the resources necessary to fulfill the added responsibility.

Senator FORD. Mr. Broderick, you stated, I believe, that today's working relationship is a positive and constructive one. Was the fact that the National Transportation Safety Board moved from the FAA building one of the factors for this positive relationship? [Laughter.]

Mr. BRODERICK. Not at all. As a matter of fact, it just puts a 5-minute walk between our offices and adds a little bit of distance. But I like to describe the relationship between the two organizations as one characterized by creative tension. They have a different role than we do. They have a different set of ground rules when they apply a decisionmaking process to one of their recommendations or our action on it.

But I think that at a professional level, the staffs work excellently together, share information—there are no secrets and there

is none of the kind of turf battling or tug of wars that you might expect. And I do not see a systemic difficulty.

We do not accept all of their recommendations, because I think that some of them go beyond either what we think is practical or as in a case like this, we have not been able to develop a means to do what it is they recommend. We work through those problems on a technical level.

But I think it is a good relationship. It is one that is unique in government in a sense. I do not know of any field other than transportation in which the Government has an agency charged to do the regulating and then another completely independent agency that is overseeing them as part of the executive branch in addition to the oversight committees of the Congress.

Senator FORD. In your statement, you indicated that the FAA cannot account for the case of the fracture in the Hartzell propeller. I got a complaint the other day about my brogue—I have a hard time getting them to understand me. I said Senator Kohl the other day and they thought I was talking about corn.

But if you do not understand what I am saying, I hope you will ask me again.

When do you expect to complete the ongoing engineering test where you will be in a position to make a recommendation or make a positive—take a positive position?

Mr. BRODERICK. Well, I can tell you what we hope and what is scheduled. We are halfway through a series of flight tests right now. We have just completed the first series of nondestructive inspection testing.

We expect to complete flight testing late this week if things continue to go well. They went a little slower than we hoped in the beginning and we had difficulty in calibrating the equipment.

We will reduce the data with Hartzell and others—and of course the Board is fully participating in this effort—next week, and then apply that data to the most sophisticated computer models we can use.

So, I would hope that within about 1½ to 2½ weeks will have good data on the measurements of loads that are present inside of this hub and then be able to compare them to the expected and predicted loads over the last few decades of use of the propeller.

So, we are realistically looking at 2 or 3 weeks at the earliest. We have already made a decision this week that based upon a detailed review of the data that we have and the crack indication that we have seen and the 123 propellers that we have already analyzed, that there is no basis that we have to expand the airworthiness directive between now and 2 to 3 weeks from now. So, it will be about that time when we hope to have data which points to the reason for this fracture.

Senator FORD. Do you share this information with the NTSB when it is completed?

Mr. BRODERICK. They are literally with us. On any given day, you may find NTSB, FAA and industry experts doing flight tests, working in a laboratory or discussing the data. It is literally shared with them on a real time basis.

In fact, it is their investigation in a technical sense. NTSB is leading this as their statute calls for and FAA is supporting the NTSB working with the manufacturer and others.

Senator FORD. I have other questions, but I do not want to take too much time. I may submit them in writing.

Senator Pressler.

Senator PRESSLER. Thank you, Mr. Chairman. The chairman has been critical of me for saying I reached conclusions. I have not reached a conclusion on the cause of the accident, but I have reached a conclusion that two letters were sent to NTSB, letters of warning and predicting a catastrophe accident.

No directive was issued, but then days after the crash, a directive was issued, even though the investigation of the crash was not over.

What was the reason for issuing that directive at that time, which I am very glad that you issued, incidentally? But if you did not have the conclusions of the accident, why did you issue it?

Mr. BRODERICK. The reason we issued it was because we had decided to essentially throw out the NTSB recommendation that we first develop a nondestructive inspection technique and then apply it to 6,000 propellers, and focus instead of the model which experienced the only two failures in the 60 million hours of operation, which is the MU-2B-60 model.

And without having the nondestructive inspection that the NTSB recommended, we elected to do a disassembly and a different kind of inspection that required pulling these tubes, which they did not want us to do with the 6,000 propellers.

So, we actually took a completely different approach to a specific model when suddenly, instead of having only one data point, we had a pattern of two data points. And that is the reason we went to the MU-2B-60 model.

Senator PRESSLER. But you did not have a conclusion, as the chairman said—perhaps we suggested maybe a bolt broke or something like that. Maybe, I do not know.

But you are in the same boat as I am in. And 10 days after the crash you issued a directive. You must have thought there was something wrong with the propeller hub assembly.

Mr. BRODERICK. We issued a directive on the basis of a pattern that had occurred. And that pattern was that with the tragic accident that resulted in the loss of Governor Mickelson and the other passengers and crew on that aircraft, two failures had occurred, both with MU-2B-60 propellers.

So, we went and decided to look at every single MU-2B-60 propeller that had more than 3,000 hours of service.

Senator PRESSLER. Yes. But just for the record, you had two letters prior to that from the NTSB, predicting even a catastrophic accident and saying that there could be a problem.

My point is that I am glad that you issued the directive 3 days after the accident, and the conclusions of the accident study will not be in for I guess another 5 months or something. But the chairman criticized me for suggesting some preliminary conclusions, which is all I have done.

You apparently reached somewhat the same conclusion 3 days after the crash, because at that point you issued a directive without the study being completed.

Mr. BRODERICK. We did that because we saw an obvious pattern with the MU-2B-60 propeller. Before April 19, there was no pattern and the data that we had applied not to 132 airplanes, or 116 airplanes with 232 propellers, but the data we had in the NTSB recommendation involved, depending on which one you are talking about, either every airplane with one of 6,000 propellers on it, which is 3 years' worth of inspection, or every airplane with one of 35,000 propellers on it, which is—

Senator PRESSLER. OK. But what caused you to reach that conclusion?

Mr. BRODERICK. The development of a pattern.

Senator PRESSLER. OK. And what was the pattern in the Mickelson accident? What happened in that accident?

Mr. BRODERICK. The same failure occurred to the same aircraft model, to the same part of the same kind of propeller.

Senator PRESSLER. Then you are saying the same thing I have said. The same failure occurred. Even though you do not have the final report of the accident. And I shall wear the chairman's criticism as a badge of pride.

Senator FORD. I make a suggestion to you now. And it is in the eye of the beholder. And you said criticism five times in 2 minutes. I would just ask you to restrain yourself because of the accident in Chicago and everybody thought it was a bolt and we went out here and started flailing our arms and find out it was not that.

So, I am trying to be a little protective here and trying to help you a little bit. But if you want to go ahead, go can just have at it.

Senator PRESSLER. No. I am just making the point that the whole concern of a lot of citizens of South Dakota is that the FAA issued a directive 10 days after an accident that they had two letters before. That is what the whole concern is about.

And if you had waited until the final conclusion of the report, I think you would have made a mistake. But the point is, you did what I think you should have done before. That is just my opinion.

But you are in the same boat as me, because you said that you concluded that there were now two incidents.

Mr. BRODERICK. Well, I do not think we are in the same boat, because the point that is critical, I think, to this discussion is that until the tragedy of April 19, we had absolutely no basis to focus in on the MU-2B-60 or any other model.

The only thing that we could have done was to propose to inspect, as NTSB requested, each of 6,000 propellers. The only technique we had to do that would have taken us 3 years to do it.

With the tragic accident on April 19, we now could take a spectrum that was this wide and focus in quickly on only 132 airplanes, which we did.

The criticism that we have had about not acting before April 18 is based upon data that really made it impossible to act rationally in a short time. With the tragic accident on April 19, we had a pattern, we acted as quickly as professionalism would allow and with-

in 9 days, we required that every airplane with an identical propeller be inspected within the next 10 hours of flight.

Had we had the same kind of pattern in August 1992, I can assure you, we would have done the same thing. But we had no basis to act in the intervening 6 months.

Senator PRESSLER. The two letters were not a basis to act.

Mr. BRODERICK. That is correct. They talked about a completely different approach to the problem.

Senator PRESSLER. Let me ask a series of questions here to both of you. Mr. Vogt, under what situation does the NTSB issue a safety recommendation to the FAA? For example, after investigating the 1991 incident in Utica, NY, why did the NTSB choose to issue a safety recommendation?

Mr. VOGT. Perhaps it would be helpful to enter that recommendation into the record so there is no question about our basis for it.

[The information referred to follows:]

#### NATIONAL TRANSPORTATION SAFETY BOARD SAFETY RECOMMENDATION

AUGUST 13, 1993.

Honorable THOMAS C. RICHARDS, *Administrator*  
Federal Aviation Administration  
Washington, DC 20591

On September 27, 1991, a Mitsubishi MU-2B-60, Canadian registry C-FFSS, on a cargo flight, sustained substantial damage when a propeller blade separated in flight near Utica, New York. The airplane was climbing through 19,000 feet when the pilot felt a strong vibration, followed shortly by a loud "bang." The vibration increased and became so severe that the pilots experienced considerable difficulty controlling the airplane. Despite this difficulty, the airplane was successfully landed at the Utica airport, with no injuries.

Postaccident examination of the airplane revealed that one of the four arms of the propeller hub for the No. 2 engine had separated, releasing one of the four propeller blades in flight. The released blade hit and damaged an adjacent blade on the same engine and ripped a 12-inch hole in the pressurized portion of the fuselage. The severe vibration resulting from loss of the blade caused substantial twisting and wrinkling of the wings and a partial separation of the No. 2 engine nacelle from the engine truss mounts. The released blade and associated blade clamp, pilot tube, and separated portion of the hub have not been recovered.

Metallurgical examination of the broken Hartzell propeller hub, model HC-B4TN-5DL, was conducted at the Safety Board's materials laboratory. The hub arm fracture was located about 2.3 inches inboard of the outboard end of the hub arm. The fracture was caused by a fatigue crack that initiated from multiple sites on the inside diameter surface of the arm and progressed through 70 percent of the arm cross section before final separation. The fatigue crack initiation area was approximately in line with the inboard end of the pilot tube that is assembled into the hub arm bore with an interference fit. During operation of the propeller, a slight stress increase is expected to occur at the position corresponding to the assembled inboard end of the pilot tube, and this may have caused the fatigue origin area to be located at this radial position.

The inside diameter surface of the separated hub arm contained scratch marks that extended over about one-half of the hole wall circumference and from the fracture surface to a position slightly inboard of the plane of the fracture. The fatigue origin area was located within this area of scratches. Examination of the three remaining intact arms after removal of the pilot tubes disclosed evidence of scratch marks similar to those found on the separated arm.

As the propeller rotates, the predominant load experienced by the hub arm is from the centrifugal loads on the propeller blades. These loads result in radial tension throughout the hub arm. In addition, drag and thrust loads on the blades produce bending in the hub arms. During normal operation (in forward propeller thrust), these bending loads result in maximum tension in the aft leading-edge quadrant of the hub arm. During reverse thrust, the maximum tension would be in the forward leading-edge quadrant of the hub arm. However, the fatigue origin

area was not located in either of these quadrants, but was, instead, found in the forward trailing edge quadrant of the hub arm, suggesting that the circumferential location of the fatigue initiation region was not influenced by bending loads but may have been determined by local stress raisers such as the scratches on the inside diameter surface of the separated hub arm.

The separated propeller hub was manufactured in 1977 and was overhauled in 1983 and 1988. Records from the first overhaul are not available. The records from the second overhaul indicate that two of the four pilot tubes had been replaced at that time. Because similar scratches were found on all four hub arms, it is unlikely that the scratches were introduced during the more recent overhaul. Also, the scratches extended inboard of the position contacted by the pilot tubes, and it is unlikely that removal or insertion of the tubes could create such damage. However, the scratches could have been created by some manufacturing or repair process any time that the pilot tubes were not present in the hub arms. The Safety Board believes it more likely that scratches were produced during original manufacturing of the hub.

General corrosion damage and corrosion pitting were also noted on various portions of the inside diameter surface of the remaining portion of the separated hub arm, including the area from which the fatigue cracking initiated. The general corrosion damage had partially obliterated the scratches from the inside diameter surface. Scanning electron microscopic examination of the fracture revealed no evidence of corrosion pits at the individual fatigue initiation sites, indicating that corrosion may not have substantially contributed to initiation of the fatigue cracking.

The Safety Board believes that it is more likely that the fatigue cracking on the separated hub initiated from the scratches than from corrosion damage. Regardless of the cause of initiation, the failure of a hub arm on a HC-B4 propeller hub could result in a catastrophic accident.

The separated hub, model HC-B4TN-5DL, had accumulated a total of 4,432 hours of operation since new. Information provided by Hartzell indicated that the highest time model HC-B4 propeller hub (manufactured since the 1960s) has accumulated about 15,000 hours of operation. The Safety Board believes that all HC-B4 Hartzell propeller hubs that have accumulated at least 3,000 hours should be subjected to a one-time inspection for cracks. Hartzell recommends that the HC-B4 propeller be overhauled every 5 years or 3,000 hours, whichever comes first. Performing the hub inspection at the next recommended overhaul could allow passage of too much time before the inspection is performed. Therefore, the Safety Board believes that the hubs should be inspected the next time that the propeller assembly is overhauled, or at the next annual inspection (or equivalent), whichever occurs first. If the inspection of these hubs reveals additional hubs with cracks, then periodic inspections of the HC-B4 hubs may also be necessary.

The interference fit between the pilot tube and the hub arm increases the possibility that removal and reassembly of the pilot tubes (to do a direct inspection of the inside diameter surface of the hub arms) could damage the hole wall. However, the Safety Board believes that hub arm cracks could be detected without removal of the pilot tubes through the use of an inspection method such as ultrasonic inspection.

The design of the HC-B4 hub and the manufacturing processes used to make it are very similar to the design and processes used to make the Hartzell three-bladed hub (basic model HC-B3) and the Hartzell five-bladed hub (HC-B5). Hartzell has made more than 2-7,000 three-bladed hubs and more than 1,300 five-bladed hubs. Because of the similarities between the types of hubs, the Safety Board is concerned that hubs of the three- and five-bladed design could also be susceptible to cracking because they could have damage similar to the scratch marks and corrosion found on the separated four-bladed hub. A failure of a hub arm on a three- or five-bladed hub could also result in a catastrophic accident, and the Safety Board believes that inspections of these hubs may also be necessary to determine if they have a cracking problem.

Therefore, the National Transportation Safety Board recommends that the federal Aviation Administration:

Develop, with the assistance of Hartzell Propeller, Incorporated, a non-destructive inspection technique capable of detecting hub arm cracks stemming from the inside diameter surface of the hub arm at the approximate location of the inserted end of the pilot tubes on Hartzell model HC-B4 propeller hubs, and issue an airworthiness directive requiring that HC-B4 hubs with 3,000 hours or more be inspected using this technique the next time the propeller assembly is overhauled for any reason, or at the next annual inspection (or equivalent), whichever is first. (Class II, Priority Action) (A-92-81)

Determine, based on the results of the inspections requested in Safety Recommendation A-92-81, if the hub arms on Hartzell model HC-B4 propeller hubs

with 3,000 hours or more should be inspected at periodic intervals. If such inspections are warranted, issue an airworthiness directive, as appropriate, requiring periodic inspections. (Class II, Priority Action) (A-92-82)

Determine if Hartzell model HC-B3 and -B5 propeller hubs, based on similarity of design and fabrication processes with the HC-B4 propeller hub, should be inspected for cracking in the hub arms. If such inspections are warranted, issue an airworthiness directive, as appropriate, requiring periodic inspections. (Class II, Priority Action) (A-92-83)

Chairman VOGT, Vice Chairman Coughlin, and Members Lauber, Hart, and Hamerschmidt concurred in these recommendations.

CARL W. VOGT,  
*Chairman.*

Mr. VOGT. We recommended that the FAA develop a non-destructive testing technique in order to inspect the assemblies. We did not recommend that the FAA do what it is now doing, although we clearly support the inspections.

In our recommendation, we pointed out our concern that in the disassembly and reassembly itself, there was the potential for further damage. So, the thrust of our recommendation was to develop an inspection technique and apply it in a nondestructive way to the aircraft and subassemblies.

Senator PRESSLER. Now, what does an NTSB safety recommendation include?

Mr. VOGT. It includes a recommendation as to a course of action the receiving administration or agency should follow.

Senator PRESSLER. Now, what factors does the NTSB look at when devising a safety recommendation to the FAA? Please use the recommendation following the Utica, NY, incident as an example.

Mr. VOGT. Well, in this case we found evidence of scratches on all four hub arms. Since only two of the four pilot tubes had been replaced in an overhaul, we concluded that the scratches were probably incurred during the original manufacture, and therefore we recommended that a nondestructive technique be used. We also did not find any corrosion involvement, which had been an initial suspicion.

Our metallurgists identified the correlation between the scratches and propagation of the fatigue crack which ultimately caused the propeller hub failure. So, our recommendation was to develop a technique which could detect these kind of scratches in the hub assemblies.

Senator PRESSLER. Now, I understand the NTSB classifies recommendations into three classes based on the importance of implementation to avoid similar accidents. How does the NTSB determine which classification to assign to a recommendation, and what are those three classifications?

Mr. VOGT. Well, there are three classifications. Class 1 is an urgent recommendation, where we suspect that immediate action is needed to prevent loss of life. Class 2 is a recommendation that we believe requires action but not immediate action, in order to enhance air safety. Class 3 is a recommendation which would require long-term proposition probably involving the allocation of additional funds or substantial long-term research.

Senator PRESSLER. Now, what level of classification was the letter regarding the Utica flight?

Mr. VOGT. It was a class 2.

Senator PRESSLER. A class 2, which—what is that one again? Not urgent, but what?

Mr. VOGT. Not urgent, but involving a need for action by the controlling agency, in this case the FAA.

Senator PRESSLER. Now, what is NTSB standard procedure after receiving a response from the FAA which rejects the NTSB's recommendation?

Mr. VOGT. When we receive a response which we find unacceptable, we correspond further with the agency, in this case the FAA, expressing our concerns about their position.

I would like to add something to what Mr. Broderick said, and that is the correspondence is only one action we take. We also have a substantial level of contact, particularly at the technical level, to discuss agency responses. It is very seldom that we get a response that comes as a surprise, because there are usually staff meetings to remove any misunderstanding about our intent or about a respondent's position. These are serious, very candid, and open discussions, and I believe very professionally carried out.

The dynamic tension that exists between us is, we believe, constructive. When we talk about correspondence and the exchange of letters, that is the formal way we communicate. We do not have any secrets from one another, including our disagreements.

Senator PRESSLER. Well, I hope that is true. It is the observation of this Senator that some of the congressional oversight committees and the NTSB and the FAA maybe have gotten too comfortable. There has to be some tension there. We do have to hold hearings such as this to try to dig into matters such as this, and that is my purpose.

Does the NTSB have any recourse to compel the FAA to implement the NTSB's recommendation?

Mr. VOGT. Let me just, if you would not mind, respond to your last comment. The fact that we discuss the issues does not mean that there is a lack of tension. We both know what we are trying to accomplish, and when we have differences they are not at all covered over. What we are trying to do is get the job done and "coziness" would be absolutely the wrong word to apply to our relationship.

Our recourse, as you know, Senator, is to make recommendations and to publicize our differences. We cannot order the modal administrations to do anything.

Senator PRESSLER. Now, clearly the Iowa incident reveals what I have called "a gridlock," in my judgment, between your agency and the FAA. How often does the FAA comply with safety recommendations to the NTSB's satisfaction?

Mr. VOGT. Well, our current rate—and I can just give you a few historical figures. Our acceptance rate with the FAA at the current time on all our recommendations is 82.4 percent. This is up from about 78 percent in 1988.

Senator PRESSLER. Do those numbers mean they take your recommendations exactly, where they take some kind of action?

Mr. VOGT. Well, whatever they do we conclude what is acceptable, and sometimes there are modifications in their position and in ours in the process. But these are closed, acceptable actions. We

accept what they have done as being in compliance with what we have asked them to do.

Now, on urgent class 1 recommendations, 91 percent have been closed as acceptable action by the Safety Board.

For your information, our days to close our recommendations is down from an average of 761 days in 1988 to 567 days. An interesting corollary is that the days for FAA's first response to an NTSB recommendation has increased from 67 to 75 days. That is a direct result of the fact that we now have conferences at the technical level before those responses are finally made so that they are quality responses, ones based upon an interchange of ideas and an understanding of each other's position.

Senator PRESSLER. Now, you sent this second category recommendation back a second time; is that correct?

Mr. VOGT. Excuse me.

Senator PRESSLER. This recommendation, this second category recommendation on the Utica accident, you sent it back a second time.

Mr. VOGT. Yes, we did.

Senator PRESSLER. Why did you do that?

Mr. VOGT. Because we did not have any evidence from the FAA that they were pursuing our recommended course of action, which was to develop a nondestructive testing protocol or technique to inspect these assemblies.

Senator PRESSLER. OK. Now, what level was it at that point? Was it a No. 2 level or a No. 1 letter?

Mr. VOGT. It was always a class 2.

Senator PRESSLER. But somewhere it predicted that a catastrophic accident could occur.

Mr. VOGT. Yes. We said in our correspondence that we were concerned that if they did not pursue the development of a non-destructive testing protocol that a catastrophic accident could occur.

Senator PRESSLER. Now, would that not make it an urgent matter?

Mr. VOGT. Not in this case, in our judgment. Everything we do, Senator, involves a potential for a catastrophe. We are in the aviation safety business, and there is just no minor accident.

Senator PRESSLER. So, a catastrophic accident is not necessarily one that involves loss of life.

Mr. VOGT. Yes, it may involve loss of life.

Senator PRESSLER. Then why was this not categorized as No. 1?

Mr. VOGT. Because then every accident that we investigate and almost every recommendation we make would have to be a class 1. Any time you are involved with aviation safety you have the potential for loss of life, even in class 3.

Senator PRESSLER. That is why I am confused a little bit, because you said the first level was those that would involve potential loss of life, and the second and third—you classified this one as No. 2. It would certainly seem that—

Mr. VOGT. I think perhaps I misspoke or you misunderstood me. They all involve potential loss of life.

Senator PRESSLER. OK. I wrote down loss of life after one and I wrote something else down after the others.

Mr. VOGT. Excuse me. I think you could write loss of life in all three categories.

Senator PRESSLER. Now, are you aware of other instances in which the FAA took action in response to a recurring accident rather than your Board's recommendations?

Mr. VOGT. I am not familiar with any in the small plane category, although I think there was one that involved a strut failure on a Piper aircraft that did not result in a second catastrophic accident but did result in another accident, and another one involving a two-part Venturi fixture in a carburetor on a light airplane. Those are the only two that we have been able to discover involving small aircraft.

We have had some differences on DC-10 cargo doors back in the early seventies which many people believe brought about the independent status of the Safety Board, involving the loss of a cargo door on a DC-10 and recommendations which were made which a couple of years later was followed by the crash of a Turkish DC-10 with loss of life, and with the ground proximity warning systems back in the early seventies, we had recommended those before they were eventually implemented.

Their implementation by the FAA has been I think an enormous success, but there were a series of accidents, and whether they happened in sequence and how they corresponded with FAA action to our recommendations I am not quite sure, but I do know that there were a series of accidents there involving that, but this is a rare occurrence in our relationship.

Senator PRESSLER. Would you agree that these recommendations, left unresolved, create a serious safety vacuum? How can such disagreements be resolved more expeditiously?

Mr. VOGT. I believe, Senator, that in our view the process is working. That is not to say that it couldn't be improved or work better. Unfortunately, we do not know until after the fact whether what we and the FAA have done in a given circumstance is always the complete answer to the problem.

What we have to do and what I think we do well and what I think the FAA does well is to take a very serious and vigorous approach to the subject matter, and in cases like this, unfortunately, it does not always prevent a second accident. To have a system which would assure, in every case, that that is not going to happen is, in my view, not possible.

Senator PRESSLER. Are you satisfied with the FAA's actions following the plane crash in Dubuque, IA? Should the airworthiness directive be expanded to include other aircraft with similar propeller assemblies?

Mr. VOGT. We are satisfied at this point with that action. But we are eagerly awaiting the results of their further efforts to develop nondestructive testing.

Senator PRESSLER. What about other aircraft with similar propeller assemblies?

Mr. VOGT. Our recommendation in that regard is contingent upon the development of the nondestructive testing. We have not changed our position.

Senator PRESSLER. Pardon? Say that again.

Mr. VOGT. We have not changed our position that all of these hub assemblies should be inspected, but it should be done by a nondestructive testing technique which has not as yet been developed. We have not changed our position on that.

Senator PRESSLER. So, that was your position before the accident.

Mr. VOGT. That is correct, and that remains our position.

Senator PRESSLER. And had your position been followed, this aircraft would have been inspected.

Mr. VOGT. If they had been able to develop a nondestructive testing technique, the airplane may have been inspected.

Senator PRESSLER. Is such a process available today?

Mr. VOGT. It is not available. We are told by the FAA that they are working on it and are hopeful that it may soon be available.

Senator PRESSLER. Now, on the international data base, I understand several international agencies monitor aviation safety concerns. For example, in Europe the Joint Airworthiness Authorities is an informal group composed of civil aviation authorities of the member states of the European Community.

Another source of global data is the International Civil Aviation Organization. How do you feel about the establishment of some type of global data base that would include all types of safety information?

Mr. VOGT. I think any data base that includes safety information would be valuable.

Senator PRESSLER. Now, last week Timothy Forte of the NTSB testified at the House hearing regarding the Utica and Dubuque crashes. I understand he is a former long-time FAA employee. Do you think it is inappropriate to have former FAA employees work for a Board which is tasked to be critical of FAA actions? Would there be a conflict of interest involved?

Mr. VOGT. No, sir.

Senator PRESSLER. Why not?

Mr. VOGT. Well, you are dealing in a very professional realm, and the fact that someone has worked for one of these agencies and goes to the other or to any other of the modal administrations that we deal with—railroads, maritime and so forth—is not a negative in terms of professionalism.

Now, if somebody were to come in with a bias, it would be inappropriate. But to suggest that because a person has worked at another agency that we deal with there is or should be automatic disqualification is I think entirely misplaced in my experience.

Tim Forte, for example, is a highly regarded aviation professional in the entire aviation community, no matter where he works. We have a number of people who have been with the FAA, and they have some who have been with us, and if anything I would say that it facilitates our ability to deal constructively in this, what we call a "constructive dissonance."

Senator PRESSLER. I am not saying that his testimony is in any way—or he is in any way affected. I am told that there is a lot of movement back and forth in personnel between the two agencies. I do not know if that is true or not. I do not have any figures on that.

Mr. VOGT. I think Senator, that is probably an overcharacterization. There are some people who have had experience in both agencies.

Senator PRESSLER. Now, Mr. Broderick described the FAA's specific role in accident investigations. For example, what office within the FAA oversees decisionmaking on safety recommendations?

Mr. BRODERICK. The Office of Accident Investigation coordinates all of our safety recommendation activity as well as our support to the NTSB, in their conduct of accident investigations.

Senator PRESSLER. What factors does the FAA consider when determining whether or not to act on an NTSB recommendation? For illustrative purposes, could you explain how the FAA arrived at its decision to deny the NTSB's recommendation concerning propeller hubs following the 1991 Utica, NY, accident?

Mr. BRODERICK. The 1991 recommendations—I am sorry, the 1992 recommendations—the 1991 accident recommended that we develop a nondestructive testing technique. We did not then and still do not today have that technique developed. Therefore we could not implement the recommendations that we inspect the propellers using that technique.

Senator PRESSLER. Now, last week at the House hearing about the Utica and Dubuque crashes you said that in retrospect the FAA should have issued the airworthiness directive. This statement disturbs me greatly—too much at the FAA is retrospective. Is that correct? Did you quote you correctly there?

Mr. BRODERICK. No, you did not. What I said was that in retrospect I wish that I or someone else within the agency had made the arbitrary decision to inspect the Mitsubishi propellers. But we did not because we had no basis for it. It would have been arbitrary and it would have been wrong. You do not make arbitrary decisions when you are dealing with other people's property, which is exactly what we are talking about here.

Senator PRESSLER. There might be a difference in that transcript, and I will take a look at that because what I have here is in quotes, but I take what you say as the fact there.

The FAA admitted that it took an accident to issue a directive along the lines of the NTSB recommendation, in my judgment. To your knowledge has this situation ever happened before, or was the Iowa incident an isolated case?

Mr. BRODERICK. Well, when we are talking about general aviation, I think we have already discussed the record this morning. There are only a handful of situations where we have disagreed with the Board, and only a couple that any of us can think of in which there was a recommendation that was made that was not accepted that was followed by another accident or incident, whether it involved the loss of life or not.

Senator PRESSLER. What is the current administrative relationship between DOT, the FAA, and the NTSB?

Mr. BRODERICK. Excuse me, sir. Did you say DOD or DOT?

Senator PRESSLER. DOT.

Mr. BRODERICK. DOT. FAA is part of the Department of Transportation and the NTSB is completely independent.

Senator PRESSLER. Now, what role do you feel the DOT should play in its relationship with the FAA and the NTSB, and are you satisfied with the current relationship between DOT and the FAA?

Mr. BRODERICK. I think the current structure within the executive branch is appropriate.

Senator PRESSLER. Do you feel that the FAA, like the NTSB, should be an agency independent of the DOT? Would such independence better serve safety enforcement?

Mr. BRODERICK. I do not see how it would, sir.

Senator PRESSLER. What is the administration's feelings on these issues?

Mr. BRODERICK. I do not know but would be happy to provide them for the record if you would like.

Senator PRESSLER. What are some ways that the DOT can best utilize the FAA or other DOT resources to promote and enforce small aircraft safety?

Mr. BRODERICK. By doing exactly what we do today. That is, working together with the other modes of transportation where they have skills to provide, such as in common work we are doing in the human factors area, cooperating on activities that will benefit either aviation safety or the safety in other modes of transportation.

Senator PRESSLER. Now, did the FAA approve the Hartzell propeller design?

Mr. BRODERICK. Yes, sir. It is FAA certified.

Senator PRESSLER. Then why would the agency approve a design that could not be easily inspected?

Mr. BRODERICK. Because it approved the design which was believed at the time and is still believed to have a safety capability which is appropriate to its use. That appropriate capability was demonstrated in some 60 million hours of operation of 35,000 propellers.

It is not at all clear that the reason the propeller failed is because of a design problem. It may be service problems. It may be maintenance problems. It may be some other problem, as the chairman pointed out. We do not know yet what the cause is of this failure. That is why we are doing all these tests.

Senator PRESSLER. Now, if the FAA initially does not follow an NTSB recommendation, and the NTSB continues to urge the FAA to implement its recommendation as the NTSB did regarding its recommendation following the 1991 Utica, NY, incident, does the FAA often consider the NTSB's recommendation? Can anything be done to resolve these disagreement more expeditiously?

Mr. BRODERICK. Most of the time we in fact do agree, as the record shows developed this morning shows. Over 80 percent of all recommendations are accepted, and over 90 percent of the urgent ones are. When we see a disagreement, we correspond as Chairman Vogt has indicated. We also meet very frequently, we are only a block apart, and talk about what we can do to resolve our technical differences.

Senator PRESSLER. Now, I am sure you are familiar with the recent accident just outside of Stockholm, Sweden with the DC-9 where ice from the wings was ingested into the engine shortly after

takeoff. The engines failed and the plane crash landed in a field and broke into three pieces. There were no fatalities.

Now, what is the FAA definition of an "unsafe condition"?

Mr. BRODERICK. An "unsafe condition," as is contained in the words of part 39, is a correctable deficiency which reduces the level of safety of an aircraft below that to which it was certified.

Senator PRESSLER. Do you consider this to be an unsafe condition?

Mr. BRODERICK. This what, the propeller or the ice?

Senator PRESSLER. The ice.

Mr. BRODERICK. Yes, we do, and we have issued an airworthiness directive to correct that unsafe condition. As you know I am sure, Senator, the reason that that airplane had ice was because it was improperly deiced after an overnight layover.

Senator PRESSLER. If there is an in-flight smoke emergency and the pilot's vision is severely impaired or he has great difficulty seeing the flight path or the instruments because of the heavy smoke, but still manages to land the plane and there are no fatalities, do you consider that to be an unsafe condition?

Mr. BRODERICK. If in fact the cause of the smoke can be isolated, the cause of the smoke would be, in the words of part 39 of the Federal Aviation Regulations, an unsafe condition. We can get confused in talking about the "unsafe condition" term as it appears in the regulations and the plain English language meaning of the word as you would use it in normal conversation.

Clearly, a condition which involves the safety of flight and reduces it is an unsafe condition. That does not mean that an airworthiness directive is appropriate or, indeed, useful in addressing that condition.

Senator PRESSLER. Now, if a propeller blade comes loose in flight, punctures the fuselage, and causes severe problems in controlling the airplane, do you consider that to be an unsafe condition?

Mr. BRODERICK. The cause of the propeller blade separation and the corrective action to be taken would be described in an unsafe condition report called an airworthiness directive which mandates corrective action.

Senator PRESSLER. Now, in the latest issue of Business and Commercial Aviation, May 1993, there is a headline saying: "FAA Guilty of Using Suspected Bogus Parts."

The report goes on to say:

The FAA will have to clean up its own act if it does not want to appear hypocritical in attacking the industry for alleged use of unapproved or bogus parts. Nearly 40 percent of the parts inventory for the agency's own fleet of 62 aircraft contains suspected bogus or unapproved parts according to DOT inspector general audit in late 1992. Bogus or unapproved parts are those not produced by parts manufacturing approval by FAA or traceable to an OEM original equipment manufacturer as required by FAA's own regulations.

It sounds like the police are caught in dealing in stolen goods according to that article. I do not know how accurate it is. But what is the FAA doing about this, or what is the accuracy of this?

Mr. BRODERICK. We are correcting the documentation problems with the parts that are used in the Oklahoma City and Atlantic City fleets of airplanes that we operate.

Senator PRESSLER. What has been done since the DOT and the inspector general's report?

Mr. BRODERICK. The development of a corrective action plan and the grounding of airplanes and removal of the parts where appropriate.

Senator PRESSLER. I am not at all critical. Why is it necessary for the FAA to have 62 aircraft?

Mr. BRODERICK. We have a worldwide flight inspection capability for the civil aviation system in the United States and the military system, all the airbases in the world. That requires us to have a fleet of some three dozen airplanes continuously monitoring the safety of the electronic navigational aids that are used throughout the system.

We also have a research and development capability at the Atlantic City Technical Center that forms a crucial part of the development of such things as collision avoidance systems and air traffic control systems.

We have a number of aircraft that are used in FAA inspector training spotted around the country. We also support the NTSB when we have an accident, for example like the accident that we are talking about at this hearing. We have the capability, using our aircraft, to put NTSB and FAA specialists in the airplane and quickly bring them from Washington or wherever they happen to be in the country directly and immediately to the scene of the accident.

In this case, we also used our aircraft to immediately take parts from the accident scene to commercial laboratories and the NTSB laboratories. They provide an invaluable resource not only in research and development but in continuous monitoring of the safety system and in contributing to the reduction in the time that is necessary to address these safety issues.

Senator PRESSLER. Time and again we hear the FAA mention cost benefit. Clearly, the record shows that this argument has been brought forth in icing, smoke in the cockpit, and Mitsubishi propeller considerations.

Are cost-benefit considerations supposed to override the requirements for safety under law; that is, the Federal Aviation Act which requires that the FAA prevent the occurrence or reoccurrence of accidents and the requirement that the FAA issue airworthiness directives when unsafe conditions are determined? Which comes first?

Mr. BRODERICK. All of us who apply the requirements of the statute on a day-to-day basis make the assumption that the Congress and the public want to make sure that they get what they are paying for. In other words that we do not do things which are not worth the cost.

When we analyze the cost of mandatory regulations that apply to other people's property, we always want to make sure that the costs that we are imposing on consumers and users is worth the benefit that they are going to get. If it is not, we try alternatives to try and find—to address the safety problem in the same way at a lower cost.

If in fact we find absolutely outrageous costs for very minimal improvements in safety, we likely will not recommend that they be adopted, and we will likely not mandate them.

Senator PRESSLER. Now, in your testimony last week in the House you mentioned that there had been no other comparable Hartzell blade fractures for either that or any other similar hub designs, despite three decades of use and some 60 million hours of service by 110 propeller hub arms.

How many blade fractures or other types of problems occurred with the propeller during the three decades?

Mr. BRODERICK. Let me just correct the record. It is not 110, it is 35,000 propellers and 114,000 blade arms.

I do not have the details of unrelated fractures that occurred on similar propellers, but if you would like we can research that.

Senator PRESSLER. If you could get that for the record, that would be very useful.

[The information referred to follows:]

The FAA has reviewed the Service Difficulty Reporting System (SDR) Malfunction and Defect Reports, which has been in place since 1974, and developed the following information based on those reports:

- There were 69 reports of miscellaneous problems with this propeller design. This category includes problems such as blade corrosion, broken springs, ground strikes, lightning strikes, incidents in which the propeller as misrigged, pitch control rod failures, broken counterweights, and oil leaks.
- There were 10 reports of cracked (aluminum) blades for blade separations, the majority of which were cracks or failures occurring at the tip of the blade. Three reports of complete blade separation were reported.
- There were five reports of propeller steel hub arm flange cracks. It is important to note, however, that flange cracks have never been known to cause a hub arm failure.
- There were two incidents of hub arm failure, both resulting in accidents (1990, nonfatal; 1993, fatal).
- To date, one hub arm crack has been found during the inspections ordered by AD 93-09-04.

Senator PRESSLER. Are cracked hub arm assemblies the only problems with this type of propeller?

Mr. BRODERICK. No. As you implied by your previous question there are other issues that have been addressed in airworthiness directives. As a matter of fact, last year there was another issue that we worked very closely with the NTSB on this same propeller that involved the clamping mechanism that holds the propeller to this surface right here.

Senator PRESSLER. Now, has the NTSB made any other recommendations to the FAA regarding other problems with this type of propeller? And if so, what were those recommendations?

Mr. BRODERICK. I do not have the details, but I would be happy to supply that for the record.

Senator PRESSLER. Would you supply those for the record?

Mr. BRODERICK. Yes. I know they were working on the one recommendation last year which we finally completed just a month or so ago.

[The information referred to follows:]

The NTSB has never made any other recommendation to the FAA regarding other problems with this type of propeller.

Senator PRESSLER. By 1985, ice on DC-9's had already caused three airline crashes. At that time Federal safety officials claimed that a hazard exists. Certain types of planes are more sensitive to accumulations of ice too small for pilots to spot. But the Govern-

ment did nothing as other ice-sensitive planes fell from the sky, killing 81 people.

Seven years later, in 1992, USAir's flight 405 became the 10th such plane to crash, plunging into icy waters just beyond the runway of New York's La Guardia Airport, and adding 27 people to the deadly toll of bureaucratic delay.

Within a month of this crash, the FAA decided to act. Spurred by the crash of flight 405, you claimed that the FAA would not tolerate business as usual, and that the FAA was creating airline and airport rules that would prevent a crash such as that of flight 405 from happening again.

Was this just business as usual at the FAA?

Mr. BRODERICK. No, I think as a matter of fact the work that we did in conjunction with our colleagues in air traffic and airports and the industry at large was remarkable last year. We put together a deicing program plan that worked very well without adding unnecessary expense or unnecessary delays to the traveling public.

Tragically, that was not adopted in every airport around the world, because there was another accident that occurred last year in the Eurasia region that was remarkably similar to the accident that occurred at La Guardia.

Senator PRESSLER. Now, is the way the FAA handled the Utica and Dubuque accidents "business as usual," to use your term?

Mr. BRODERICK. I would think that we applied the best information we had in the most professional way at the time. In the case of the Utica incident, the only information we had was for the first time in 30 years one of 114,000 blade arms had failed. We began to work with the manufacturer and got our nondestructive inspection specialists together to address that issue.

Similarly, but in a very different way, the day that we learned that a similar accident had occurred tragically at Dubuque, we used the same people and the same professionalism to develop an analysis, understand the pattern, and within 9 days issue an airworthiness directive.

Two different sets of facts. The same people using different facts to come to different conclusions.

Senator PRESSLER. OK, but in my mind it would appear analogous. I mean, there were the same people working. But what regulatory actions were taken with regard to the deicing problems? If the problem had been around for almost a decade, why was the FAA so slow to act before the USAir accident, but so quick to act immediately after the accident?

Mr. BRODERICK. The fact is that we did act before the USAir accident. We applied an airworthiness directive and issued it to DC-9-10 airplanes, which are of a hard wing design; that is, they do not have slats. And we thought that that had addressed the problem.

What we found after the USAir tragedy was that an analysis of data which showed us for the first time that, in fact, hard wing airplanes appear to be much more susceptible to ice than slatted wing airplanes.

There are only two kinds of hard wing airplanes that are appropriately discussed in this context. One is the DC-9 and DC-10,

which already had an airworthiness directive applied to it. The other is the F-28 or the F-100 is the latest version that we have. We applied special procedures to that airplane in our development of the deicing program.

There has never been, with the exception of the Washington National accident over here, a crash of a slatted wing airplane like a 727 or a 737, 747—there has never been a crash of one of those airplanes in which deicing has occurred at any time before takeoff.

Senator PRESSLER. Chairman Vogt, I believe you stated you publicize your differences between yourself and the FAA. What do you mean by publicize? Do you share the information with the general public?

Or, to be more specific, if I had owned a Mitsubishi, how would I have been able to find out about the two letters that went over to FAA?

Mr. VOGT. Well, our initial recommendations are sent out to a wide spectrum of the aviation community. We have a mailing list of some 1,300 recipients, and interested Members of Congress. Recommendations also are widely publicized in the trade press and other publications.

We do not publish the exchange of correspondence, but it often gets published in the trade press.

Senator PRESSLER. Was this one published?

Mr. VOGT. I am not sure whether it was or not. I do not know the answer to that.

But the recommendations which we make are widely disseminated so that, as a general proposition, people are aware that we have made a recommendation to the FAA. We get inquiries on the recommendations by people who are interested as well.

For example, I think—and I do not know this for a fact, but it would be typical that the MU-2 community was aware of our recommendations to the FAA. We would expect operators of those aircraft to contact us if they had further questions or about the FAA response.

Senator PRESSLER. So, I guess my final question, and I will have more questions for the record, is and I am again framing this thing to the FAA, your decision to issue the directive a few days after the crash then was based on a conclusion that the propeller did cause the accident. Is that correct?

Mr. BRODERICK. No, that is not correct. Our decision to issue the airworthiness directive was based on the newly developed pattern. That tragic accident doubled the amount of data we had. With twice as much data applying to the identical airplane, it appeared prudent to inspect all 116 airplanes.

Senator PRESSLER. Then what data came from the second crash?

Mr. BRODERICK. The fact that there was a propeller that broke in the same way as the earlier, nonfatal accident had a fracture.

Senator PRESSLER. And you knew that before the conclusion of the report?

Mr. BRODERICK. We knew it before the conclusion of the report because the report has not been written yet, but we certainly did not know it before the accident, which is why we did not issue that airworthiness—

Senator PRESSLER. But how did you know it after the accident?

Mr. BRODERICK. By observing the propeller with only three of the four hubs still attached to the aircraft.

Senator PRESSLER. That is right, but that is the same thing that I have observed, and that is the reason that I am upset. I have not reached conclusions about the final report but that is the same thing that I have been criticized for—for reaching the same preliminary conclusion, apparently. If one of the propellers is off, I see it as the same as the Utica accident.

Mr. BRODERICK. It may be. Only the investigation will tell us if they are the same.

Senator PRESSLER. That is correct. But you issued a directive before the report came out, which I think was very appropriate. But that is the same thing—we are both operating from the same basis.

Mr. BRODERICK. There is the same data available to both of us; yes.

Senator FORD. Senator Daschle, do you have any questions of our panel? We would be delighted to entertain them.

Senator DASCHLE. Thank you, Mr. Chairman.

I know time is running late and you have another panel, but let me, just to clarify in my own mind, ask a couple of questions.

One, you have been very diligent in answering Senator Pressler's questions. As I understand it, you had what may have been viewed as an isolated incident—one occurrence. The NTSB made a recommendation that you need to find a nondestructive testing mechanism by which to judge the airworthiness of other propellers. You determined that there was no such method available. Did you conclude at that time it was not necessary to find a nondestructive method of testing, or did you begin the process of examining options for nondestructive testing at that time?

Mr. BRODERICK. Well, actually, we began the process of examining options after we got the NTSB recommendation. We had not concluded that we were not going to be able to do that. In fact, we were working on that. The one thing that I regret, but I understand in examining the data in retrospect, is that we had not put a higher priority on it. We thought, as you so aptly put it, that this was an isolated case. And we did not think that there was an urgency associated with the development of that technique.

But, between February and April, we were quite active with our nondestructive inspection specialists in working with Hartzell and the NTSB folks and others discussing what might be done because of the difficulty of inspecting such a massive piece of metal and looking for a tiny crack on the inside, where you cannot see it.

Senator DASCHLE. Based upon that answer, it would seem to me that it is inaccurate to characterize your response to NTSB, therefore, as a rejection of the recommendation—because of what you said to be the case, which was that you were examining options with which to pursue the recommendation made by the NTSB. Is that a fair statement?

Mr. BRODERICK. That is exactly the way I would view it, Senator, but let me say that in reading the letter, I can understand why someone looking at this kind of correspondence for the first time would interpret it as a rejection of the recommendation. We were not very articulate in explaining what we were doing, and we were not very complete in explaining all of the actions underway.

Just a few days ago, we wrote another letter to the chairman of the Board explaining that in fact we are working on developing this nondestructive inspection technique, and we are working on applying it exactly as they recommend it to the entire fleet, if we can develop it. And I hope that they will find that an acceptable response.

Senator DASCHLE. Well, Mr. Vogt has said earlier that correspondence is only one means by which the two agencies coordinate and communicate. And so, if there was some misinterpretation, was it clarified rhetorically. Was it clarified orally? Or did you view it, Mr. Vogt, as a clear rejection at the time?

Mr. VOGT. Well, we did not view it as a rejection. We were just not satisfied that they were doing what we asked them to do. And that is why our response was open unacceptable. I have their latest correspondence, and we will respond to that. It seems to be very encouraging.

Senator DASCHLE. So, as I understand—I am trying to construct the scenario here—you made a recommendation both in writing and orally, they came back with a response that you did not find acceptable, but that you did not conclude was necessarily a rejection. Is that correct? I do not want to put words in your mouth.

Mr. VOGT. Yes, sir, that is correct.

Senator DASCHLE. And that, as a result of that dialog, you continued to find ways with which to begin developing this nondestructive method of testing to pursue through the FAA what the NTSB has recommended; is that correct?

Mr. VOGT. Yes, sir. We believe they are moving in the right direction, or we think they are. And we are, as I mentioned, in the process of evaluating their latest correspondence on it.

Senator DASCHLE. Now, let me ask you, because I view what you are doing today as constructive, but one would leave the implication that this disassembly is a destructive method of inspection and testing.

Mr. BRODERICK. It can be, sir, yes.

Senator DASCHLE. It can be. So, you are pursuing what may be a questionable means of attempting to arrive at some conclusion with regard to the airworthiness of that hub; is that correct?

Mr. BRODERICK. Well, that is correct if we had done it in a business-as-usual way, but we did not. We did two things. No. 1, we focused down from 35,000 propellers down to 232, to very tightly limit this to only those where we had good justification, a good pattern to follow. We said, "Yes, the risk is worth the benefit in this case."

And the second thing is, instead of going to any one of the 110 or so authorized Hartzell propeller service stations, the people that owned these propellers were required to ship them back to the factory so that we could effectively have what amounts to almost laboratory control over the disassembly and reassembly. As I indicated in the earlier discussion, about five of the propellers have been destroyed in the process.

It looks like it will be something a 5 or maybe a little bit higher percent rejection rate for the reason you state.

Senator DASCHLE. You also mentioned that there is a possibility that a nondestructive method could be achieved I think you said

in the near term. How would you define "near term," and can you describe very briefly the nondestructive approach?

Mr. BRODERICK. Well, how I would define "near term" is success—continued success in the laboratory within the next few weeks. And then the development and training of the fixtures that are needed to provide them to the authorized service stations that would actually do the inspection.

What we are looking at is taking these hubs, not disassembled with the pilot tube out, but probably disassembled with the propeller off and with the clamp off, as you see here, of course, either on the wing or more likely in a propeller shop, and applying ultrasonic energy to the outside, all around this surface. That would find the discontinuity, which is a little crack, down here on the inside, if we are fortunate enough to be able to do that.

It is a technique which can be done from the outside, without disassembling and getting inside. And it looks promising. I hope it pans out, because it is the only technique that looks promising. We have tried things like x-ray and eddy current, which are other commonly used nondestructive techniques.

An x ray, when you look through metal that is this thick, will only see a crack that is something like thirty-thousandths of an inch wide. Unfortunately, a fifteen-thousandths of an inch wide crack, which is one-half what an x ray would see—in other words, not detectable by x ray—would probably cause failure of a hub like this within something like 1,500 hours, according to the stresses as we understand them.

So, we are looking for the development of a fixture that will go on the outside of this piece, couple it to the hub arm itself, and use ultrasonic energy to find the discontinuity which a crack represents from the outside.

Senator DASCHLE. The three of us from time to time are called upon to debate the issue of cost/benefit, as Senator Pressler alluded, and in fact there have even been proposals to put out economic impact statements on new regulatory burdens placed upon pilots or businessmen or anybody else. I am interested in the cost of the disassembly inspection process per propeller perhaps, and the cost of the nondestructive method that you are now suggesting might work.

Mr. BRODERICK. Let me get you some more precise information for the record.

[The information referred to follows:]

The cost to remove, disassemble, inspect, rework, reassemble, and dynamic balance both propellers, as required under AD 93-01-09, is approximately \$3,500 per aircraft (or \$1,750 per propeller).

Should ultrasonic inspection prove feasible, the cost of inspection, reassembly, and dynamic balance will be approximately \$2,000 per aircraft (or \$1,000 per propeller). The procedure will cost about one-third less because the aircraft pilot tubes will not have to be removed.

Mr. BRODERICK. I asked a similar question of our engineers a couple of weeks ago. And the best that they could say was that Hartzell's off-the-top-of-the-head estimate for the work that we directed—that is, the disassembly and inspection at the laboratory for all of the propellers, which is a couple of hundred propellers probably—was on the order of \$1 million.

It obviously would be a lot less expensive if you were able to do it without shipping the propeller back to Hartzell, and do it with a nondestructive inspection technique that did not require pulling these pilot tubes out and replacing those, which you must do.

As indicated in some of the correspondence that we have seen from Hartzell, just the replacement of every one of these tubes in the fleet is a \$15 million materials bill, not counting the labor and things like that, that go with it.

To replace all of these hubs in the fleet—in other words, without doing the inspection—would cost \$100 million. And that is just the raw, catalog material cost, not counting the labor or inspection that is associated with it.

Senator DASCHLE. So, based upon your answer, the range is anywhere from \$5,000 to \$50,000 per propeller, depending on what may be found?

Mr. BRODERICK. That appears to be the case in the first inspections. Now, if we were applying nondestructive inspection to a wider array, I would expect that cost to drop considerably. I would hope it would, because that is an awful lot of money to pay.

Senator DASCHLE. Under current circumstances, who would be required to pay those costs?

Mr. BRODERICK. The owner or operator of the aircraft. It is not something that we levy against the manufacturer.

Senator DASCHLE. So, if you had one situation which may have created the circumstance we are now investigating, and upon that circumstance, required all pilots who owned Mitsubishi's to subject their airplanes to anywhere from a \$5,000 to \$50,000 inspection and reassembly of that propeller, how would you judge that in terms of cost-effectiveness or economic impact? Is that something that would probably be included as a practical expectation for pilots or for airplane owners?

Mr. BRODERICK. If you look at a \$1 million expense to prevent another accident in the Mitsubishi fleet, yes, I would say that that is a reasonable expense. Let me say, though, that I am sure that the \$1 million figure that we were quoted by the Hartzell people includes a lot of laboratory work and things that would not be normally done in the normal course of business. So, I would go much closer to the \$5,000 per inspection than the \$50,000, although, as I said, we will endeavor to get you more precise data.

Senator DASCHLE. Thank you, Mr. Broderick.

Mr. Vogt, just one last question. I assume that from what both you and Mr. Broderick have said, that while, I think you called it, a constructive tension exists between the two agencies, that you, from time to time, have felt that there are ways with which the relationship could be improved upon. Can you think of any recommendations made by NTSB about that relationship that would have led you to believe that had we followed some advice taken by NTSB at some earlier date that relationship would be better today?

Mr. VOGT. I think, Senator, it is fair to say that people have been working at this relationship, particularly in the last few years, very diligently on both sides. I think we have seen a direct improvement in it as a result of those efforts, and we are always looking at ways to make it even better.

We are not running any popularity contest at the NTSB. When we talk about relationships, we talk about a relationship that can be measured in terms of understanding and accepting what we think needs to be done. We should continue along the track we are working now, because I think that we are getting results and the kind that we want.

Senator DASCHLE. Well, thank you both.

Mr. Chairman, thank you very much.

Senator PRESSLER. Mr. Chairman, could I ask one followup question. Mr. Broderick, could you provide the subcommittee with documentation to support your statement that the FAA had begun to develop a nondestructive investigative technique for the propeller assembly?

Mr. BRODERICK. I would be happy to, sir.

[The information referred to may be found in the committee's files.]

Senator PRESSLER. OK.

And, Mr. Chairman, I have a statement from Senator Dole. I ask unanimous consent to place it in the record.

Senator FORD. That is so ordered.

[The prepared statement of Senator Dole follows:]

#### PREPARED STATEMENT OF SENATOR DOLE

Mr. Chairman. Thank you for the opportunity for me to submit comments on S. 857, "The National Commission To Ensure Small Aircraft Safety Act of 1993" as introduced by my friend and colleague Senator Larry Pressler.

As my colleagues know, South Dakota suffered a tremendous loss recently when South Dakota Governor George S. Mickelson and seven others were killed when their Mitsubishi MU-2 aircraft crashed. In his subsequent investigation, I understand Senator Pressler has learned that the National Transportation Safety Board had contacted the Federal Aviation Administration to urge the FAA to inspect the HC-B4 propeller assembly on the entire fleet of this type of aircraft. It is my further understanding that although NTSB recommended this action, FAA declined to take action.

Senator Pressler shares my concern for general aviation aircraft safety. It is well known to the committee that my home State of Kansas is a major general aviation aircraft producer. It has been my experience over the years that those who are in this business consider safety their first priority.

I also believe that the men and women of the NTSB and the FAA are genuinely concerned about safety issues and are motivated by pure thoughts when it comes to aircraft safety. However, in this case—and it is a tragic case—it is clear that something more should have been done.

Senator Pressler does a great service by pointing out this problem. Although both agencies have excellent records, every federal agency—including the NTSB and the FAA—should be big enough to stand scrutiny and discussion regarding internal procedures when it comes to promoting and achieving better aircraft safety. I agree with Senator Pressler's previous statements when he says this discussion is not designed to point fingers of blame or vent anger, rather this discussion should be looked at by all involved as a constructive opportunity to determine if current investigatory practices and procedures are adequate to meet and improve upon the goal we all seek to achieve.

I applaud Senator Pressler's action to bring this issue before the committee. The committee has always endeavored to play a constructive role in these issues and will no doubt be hearing from a variety of individuals in an effort to help the committee reach appropriate conclusions.

Senator FORD. You have been at that table now for almost 2 hours, and I am sure you want to get out of that hot chair. I am very, very concerned that we be very careful with the direction we are going with this hearing. And see if you can help me just a little bit, both of you.

We have a memo or a letter or a direction from the National Transportation Safety Board that was class 2, which was not classed as urgent. They asked the FAA to give consideration to the inspection or to the look at the scratches that were found in a accident. That presented a question to FAA of how many propellers. Can you tell me, Mr. Broderick, how many propellers?

Mr. BRODERICK. Well, depending on which ones, it was 6,000 of the four-bladed propellers that they recommended that we immediately inspect with this to-be-developed technique.

Senator FORD. OK.

Mr. BRODERICK. And another 28,000 eventually.

Senator FORD. All right. So, they asked you to try to find an inspection process in their class II recommendation. They asked you to find an inspection process—not do it, but find one that you could do with them; correct?

Mr. BRODERICK. Well, they said find it and then do it to 6,000 propellers.

Senator FORD. All right. And there had been 60 million hours on the propellers of this type?

Mr. BRODERICK. Right. All propellers of this type.

Senator FORD. All propellers. So, you have had 60 million hours and this was the first incident.

Mr. BRODERICK. Of its type, yes, sir.

Senator FORD. Of its type over 60 million hours.

And then the second one, which was the accident that has brought us here today, gave you a pattern of only two. And did I understand you right, if you found a crack of one-fifteenth of what was it?

Mr. BRODERICK. Fifteen-thousandths of an inch wide.

Senator FORD. Fifteen-thousandths of an inch wide. It was still good for several hundred more hours.

Mr. BRODERICK. Fifteen hundred hours.

Senator FORD. Fifteen hundred hours before you suspect that anything would happen.

Mr. BRODERICK. That is correct.

Senator FORD. And that had to be part of the mix in you making the judgment?

Mr. BRODERICK. That is correct.

Senator FORD. Thank you, gentlemen.

I appreciate your testimony. I appreciate your being here today. And there will be some questions for you in writing, and I hope both of you will respond in a timely manner.

Mr. BRODERICK. I would be happy to.

Mr. VOGT. Thank you, Mr. Chairman.

Senator FORD. Our next panel will be Mr. Barry Harris from Arlington, VA; Mr. Ira Furman from Woodmere, NY; and Mr. Arthur Wolk from Philadelphia, PA.

Mr. Harris, you may go first, and we hope that you would shorten your statement.

#### STATEMENT OF BARRY HARRIS, ARLINGTON, VA

Mr. HARRIS. Mr. Chairman, if I do not keep it under 3½ minutes, you can shoot me.

Senator FORD. I will tell you what, I will give you 5 before I load.  
[Laughter.]

Mr. HARRIS. Good morning, Mr. Chairman and other members of the committee, I am Barry Lambert Harris and for the last 3½ years, until this past January, I served as Deputy Administrator or Acting Administrator of the Federal Aviation Administration. I am here today to share with you insights that may have relevance to the relationship to the FAA and the National Transportation Safety Board.

During my tenure at the FAA, which was longer than many in recent times, I was intimately involved in the interface between these two agencies both at the policy level and at the working level.

While I served under a President of one party and our sitting President is of another party, I regard that as irrelevant. I believe the work of the FAA transcends politics. Safety is what motivates working-level FAA employees. They selflessly work 70-hour weeks, weekends, holidays when the job requires it, and it frequently does. I was there. I have seen it first hand.

The other thing I have seen first hand and felt myself was the stress and the pressure of the responsibility of being responsible for the lives of millions of Americans who travel by air, and it is not just the commercial segment that receives attention. While I was at the FAA we poured enormous resources into general aviation, in education and certification of pilots and mechanics, and any number of other areas that would enhance or improve safety, and the statistics tell the story.

General aviation's safety record has shown a trend of steady improvement over the last decade, as has the rest of the industry. Air transportation is the safest form of transportation in the United States today.

Critics say the FAA could do more, could make the system safer faster, could make the system totally safe. I suggest to you that the only totally safe, perfectly safe air transportation system is one in which airplanes do not fly. All human endeavor, by its very nature, produces risk.

As for the relationship between the FAA and the NTSB, I always found it to be quite satisfactory. Having said that, I would like to call your attention to the NTSB's role in aviation, and that is to determine the probable cause of accidents—the probable cause. The FAA must then find a way to translate that into specific and precise action.

To do that responsibly and to avoid arbitrary actions, the FAA must scientifically and methodically assess probability. Probability is a function of pattern. Patterns are a function of events, plural, not a single, potentially random occurrence.

Let us take some specifics of the incident that is the focus of this hearing, the failure of a Hartzell HC-B4 propeller hub. The NTSB cited two possibilities for the failure of the hub: corrosion and shallow machine scratches.

Then they said, "Corrosion may not have contributed to the failure, and the scratches are more likely to have been the cause."

I am not suggesting this language is equivocal, but at the same time it is not a monument to assertive clarity, either. Of course, we do not know yet what has or will be found in the case of the hub

from the Iowa crash. What if there is corrosion, but no scratches? What if the reverse is true? What if what we are really dealing with is a maintenance procedure problem?

The NTSB suggests a nondestructive test, but neither they nor the FAA is aware of a technology that they know will work. The next best thing is a test requiring disassembly of the pilot tube. If, indeed, a maintenance procedure is the problem, that could cost more lives than it saves. Who will take that responsibility?

I raise these issues, Mr. Chairman, not in the spirit of contentiousness, but to illustrate how complex these issues often are. When we accept simple, quick, intuitive solutions to complex problems, we often fall victim to the law of unintended consequences. The FAA labors in the dim glow of foresight, while its critics enjoy the incandescent clarity of hindsight.

In closing, Mr. Chairman, let me say that this committee has always, in my experience, been scrupulously fair in its oversight of the FAA. I suspect this is largely because you have come to know and respect, as I did, the career employees of the agency. They are bright, dedicated, technically competent professionals who are intensely and personally aware of their grave, very grave responsibilities to the American people.

Thank you, Mr. Chairman, and I would be happy to answer any questions when you get to them.

Senator FORD. Thank you, Mr. Harris.

Mr. Furman.

#### STATEMENT OF IRA J. FURMAN, WOODMERE, NY

Mr. FURMAN. Yes, Mr. Chairman. I assume my formal remarks will be part of the record.

Senator FORD. They will be included in the record as if given.

Mr. FURMAN. Thank you.

Mr. Chairman and members of the committee, I am Ira J. Furman, an attorney practicing law in Woodmere, NY. I thank the committee and particularly Senator Pressler for this opportunity to testify. I share the concerns of this committee over the safety of the aviation system and testify from the perspective of having been at the scene or otherwise involved with the investigation of most major air crashes in the last decade.

I am a former Deputy Director for Public Affairs at the National Transportation Safety Board and served under Jim King and then Jim Burnett. Since leaving Government I have been employed as a television news consultant and participated in onsite coverage of major aviation accidents.

In the context of this hearing's inquiry into FAA responsiveness, I want to relate one personal experience that should be of interest. As an attorney, I represented on a pro bono basis the employee who falsified Eastern Airlines fuel contamination safety checks on shuttle flights from New York to Washington and to Boston.

I obtained Federal immunity for my client and then turned over to the FAA documentary evidence and sworn testimony that revealed safety checks were not being performed. The FAA did not react to this hardcore evidence of fraud for at least 9 months. During that time, thousands of flights were at risk, as were hundreds of thousands of passengers.

Ultimately, a Justice Department investigation in which I assisted led to criminal indictments of Eastern officials. It is that same spirit of pro bono service that has brought me to Washington today. I have come to speak in support of the commission Senator Pressler has proposed. I believe a review of the FAA's responses to NTSB recommendations will make it clear to Congress that the FAA should not be permitted to meander—meander through molasses when alarm bells dictate decisive action.

The issue for Congress, I respectfully suggest, is to determine if it agrees with the way the FAA balances the benefits of safety regulations against the cost to the taxpayers and the aviation industry. In short, whether Congress agrees with the FAA's view of acceptable risk.

There is no point to Safety Board accident investigations if we are not to learn from mistakes of the past in order to prevent recurrences. Investigation is a diagnosis so that a remedy can be prescribed. If the FAA fails to take the prescribed medicine because it finds the pill too big, or it finds the pill too bitter or too expensive, it is the public that is at risk for further injury or death. Congress must assess whether that risk is appropriate.

The circumstances surrounding the death of South Dakota Gov. George Mickelson are by now well-known to the committee. Whether the FAA should have taken the earlier advice of the NTSB regarding the Hartzell propeller hub is a question now being answered with the benefit of hindsight. I can say it is a shame whenever people die in an aircraft accident. It is truly shameful when a crash occurs because the FAA has ignored the lessons of an earlier accident or incident that led to a well-conceived Safety Board recommendation.

Senator Pressler has expressed concern that the FAA does not have sufficient sensitivity to warning signs to address them in a timely fashion. I respectfully concur and refer the members of the subcommittee to the full text of my testimony provided earlier in the week.

Therein, you will find examples relating to cabin material flammability standards, a requirement for full face smoke masks for flight attendants, delays in promulgating rules for upgraded and expanded use of cockpit voice and flight data recorders, the continuing threat of runway collisions, and the delay in promulgating deicing rules.

In closing, I would simply say that congressional oversight requires informed vision. The commission Senator Pressler has proposed would provide some insight for proper oversight.

Thank you.

[The prepared statement of Mr. Furman follows:]

#### PREPARED STATEMENT OF IRA J. FURMAN, ESQ.

I am Ira J. Furman, an attorney practicing law in Woodmere, New York. I begin by thanking the Committee, and particularly Senator Pressler, the distinguished gentleman from the awe inspiring State of South Dakota, for this opportunity to testify.

This Committee well knows that aviation safety is a matter of tangible concern to those Americans who participate in the millions of flights and billions of aircraft miles flown each year. I share that concern, not only as a user of the system, but as one whose life has become entwined with aviation accidents, with the work of

the National Transportation Safety Board, and with the role of the Federal Aviation Administration.

I have been at the scene or otherwise involved with the investigation of most major air crashes in the last decade. Most of that involvement came as Deputy Director for Public Affairs at the Safety Board for more than six years beginning in 1980. During that period I had the distinct honor to serve under the leadership of Jim King and then Jim Burnett, two Board chairmen well known to this Committee for their exemplary zeal in promoting aviation safety.

After I left government service to practice law in New York my professional interest in aviation safety gained new perspectives. In addition to being an attorney, I am also a licensed private investigator, and a former award-winning newspaperman. These professional credentials have enabled me to remain close to aviation issues. I have been employed as a news consultant by the ABC-Television network and participated in their on-site coverage of several major accidents across this country. I provided other news media with on-site print and broadcast coverage of the tragedy in Lockerbie, and my private investigation firm is involved in security work for international air carriers, including El Al.

In the context of this hearing, one particular experience I have had with the Federal Aviation Administration should be of interest. I will summarize that by excerpting an Associated Press wire service report dated June 16, 1989:

[Dateline] New York—An attorney representing a fired Eastern Airlines manager said Friday the Federal Aviation Administration has been lax in taking action against falsification of records \* \* \* at New York's LaGuardia Airport.

Ira J. Furman \* \* \* said he represents a former Eastern maintenance manager at LaGuardia who has talked to the FAA, the FBI and the U.S. Attorney's Office about the alleged violations that occurred at least a year ago. The former manager \* \* \* said he initialed documents saying tests were made on jets parked overnight at LaGuardia when no tests actually were made \* \* \*

"It has taken a while for us to look into this case," (said an FAA spokeswoman, who also said) the delay was "In the interest of thoroughness."

Furman \* \* \* said his client was granted immunity in the case last September.

The essential points are:

- the report was in June; and I had obtained federal immunity for my client the previous September, some nine months earlier;
- that the documentation of fraudulent (and by that I mean, non-existent) checks for fuel contamination on Eastern's Boston and Washington shuttles was laid in the hands of the FAA at that time;

thus, at least nine months later, the FAA was still "looking into" conclusive evidence of massive fraud involving the safety of thousands of flights.

While the FAA remained immobilized despite painfully clear documentary evidence and self-incriminating sworn testimony, I continued to meet with members of the U.S. attorney's staff and agents of the FBI. The Justice Department's investigation confirmed my client's allegations and resulted in what was to my knowledge the first criminal indictment of airline officials.

I tell you with great pride that all of the legal and investigatory work done for our client was performed strictly on a pro bono basis. It is in that same spirit of public service shared by my law partners at Schneider, Harris, Harris, & Furman, and an abiding interest in aviation safety, that I have taken time from my law practice to provide this testimony.

I also tell you that it is the horror story of the FAA's inaction in the face of clear and convincing evidence that thousands of Eastern shuttle flights were at risk that has brought me to Washington. The Commission Senator Pressler has proposed will make it clear to Congress that the FAA should not be permitted to meander through molasses when alarm bells dictate decisive action.

#### FAA COMPLIANCE

It is probably fair to say that any inquiry into the dynamics of the relationship between the Safety Board and the Federal Aviation Administration will touch on what might be called the FAA's "compliance quotient." As you know, the Independent Safety Board Act of 1974 charged the Safety Board with "formulating safety improvement recommendations." The NTSB keeps score as to whether the FAA's response to each of the Board's recommendations is "acceptable."

During my tenure at the Safety Board—and I understand the level is today in the same range—the FAA's response to NTSB recommendations was such that the Board evaluated something over 80 percent of them as "acceptable."

A question that immediately arises is whether the FAA's "score" should be higher; whether it should be more responsive to the Safety Board. I believe that if FAA compliance, or assent—however you label it—was much higher, there would be real risk that the public was not being served. The risk would arise from the probability that a higher compliance quotient was the result of the Safety Board making what might be called "powder puff" demands of the FAA.

Thus, some of the FAA's resistance to NTSB recommendations should be seen as a reflection of the challenging nature of those recommendations. Likewise, I acknowledge that some of the disparity between NTSB recommendations and FAA compliance reflects a proper tension between the Safety Board's wish-list approach and the FAA's independent assessment of cost, risk, and benefit factors.

My view of the question to be addressed by the Commission proposed by Senator Pressler borrows heavily from the noted jurist, Learned Hand. He would say the critical question—and a most proper subject of congressional oversight—is what weight does the FAA give to each of the factors it assesses. The Commission would enable Congress to determine if it agrees with the way the FAA balances the benefits of safety regulations against the costs to the taxpayers and the aviation industry; in short, whether Congress agrees with the FAA's view of "acceptable risk."

Therefore, Senator Pressler's proposed commission would be expected to review the FAA's cost-benefit analysis so that we may know whether the FAA is sufficiently responsive to NTSB recommendations. Such an analysis is needed because the plain truth is that when the FAA is wrong, people die. When that happens, their family, friends, associates—and perhaps their constituents—may suffer an incalculable loss.

#### HAS THE FAA FAILED

Careful accident investigation provides us with near-perfect insight into what went wrong. But providing this insight is only half of the mission of the NTSB. As is the case with a doctor and patient, the diagnosis is really made only for the purpose of prescribing a cure. Likewise, the second half of the NTSB mission is to recommend a course of treatment. And, of course, the more accurate the Safety Board diagnosis, the more specific the remedy it can recommend.

The death of South Dakota Governor George Mickelson, along with seven others, and the circumstances relating to the Mitsubishi MU-2 crash in Dubuque, Iowa, are, by now, all too well known to the Committee. Whether the FAA should have taken the earlier advice of the NTSB regarding the Hartzell propeller hub is a question now being answered with the benefit of hindsight.

It is, of course, a shame when we fail to prevent an accident. But it is truly shameful when a crash occurs because the FAA has ignored the lessons of an earlier accident, or even an incident, that led to a well-conceived Safety Board recommendation. Senator Pressler recently wrote to the FAA's acting administrator to express the concern that the FAA does not have sufficient sensitivity to warning signs to address them in a timely fashion. I respectfully concur.

#### CABIN MATERIAL FLAMMABILITY

One example that comes to mind arises from a request by this Subcommittee's Chairman, the Honorable Wendell H. Ford of Kentucky, who asked the General Accounting Office for an assessment of flammability standards for materials used in cabin interiors of U.S. transport airplanes. The title of the GAO report issued earlier this year is both descriptive and illustrative of the issue before this subcommittee. It was titled: "Slow Progress in Making Aircraft Cabin Interiors Fireproof."

The report noted that since 1985 about 22 percent of the fatalities in U.S. transport crashes involving fire were as a result of the effects of fire and smoke. The report also said accidents in the past 2 years have raised concern about the ability of occupants to escape from a post-crash fire. The GAO concluded that while stricter flammability standards apply to all aircraft now being manufactured, retrofitting is going much slower than anticipated by the FAA. In fact, the report says, 45 percent of the fleet will likely not meet flammability standards by the end of the century.

So far, the FAA's response has been to assert that its cost analysis is such that the safety benefits of refurbishing cabin interiors do not warrant a speedier timetable.

My response is to point out that in 1980 a fire broke out in a Lockheed L-1011 and the aircraft made a successful emergency landing. Before any of the doors could be opened, three hundred and one people burned to death. The accident occurred in Saudi Arabia and therefore is not a part of the GAO or FAA statistics. Were such an accident a part of U.S. aviation history the FAA position would be untenable.

Should it take the blow to the public psyche of hundreds of deaths in a single accident before the FAA will act? Should the FAA be more responsive to the fact that

one decade of statistics showed smoke and fire killed twice as many passengers as the impact of survivable accidents?

#### FIGHTING CABIN FIRES

In 1973 the Safety Board participated in the investigation of a foreign accident involving a Boeing 707. A fire that started in a rear lavatory was responsible for the death of 124 persons.

One lesson that was learned by the Safety Board resulted in a recommendation to the FAA that flight attendants be provided with oxygen bottles and full-face smoke masks. The premise was simple. Fighting even a small fire required being able to get close enough to aim the fire extinguisher at the source. If smoke drove the crew member back, the fire could continue to spread.

Inevitably, ten years later, in July 1983 an Air Canada flight was forced to make an emergency landing at the Greater Cincinnati International Airport (Covington, Kentucky) in Sen. Ford's home state. A fire had broken out in the aft lavatory. By the time the aircraft could be evacuated, 23 passengers were not able to get out of the plane and died in the smoke and fire.

The Safety Board report adopted more than a year later in August 1984 (NTSB/AAR-84/09) noted that the FAA has still "not indicated that it intends to require by regulation the installation of portable breathing equipment which would be available immediately in passenger compartments for use by cabin attendants in combatting cabin fires."

#### VOICE AND DATA RECORDERS

Cockpit Voice Recorders and Flight Data Recorders are what I called in my years with the Safety Board, "the pick and shovel" of aircraft accident investigation. Without them, Safety Board investigators are forced, figuratively speaking, to dig for the cause of an accident with a spoon instead of a shovel.

I refer the Subcommittee to page nine of the NTSB's 1987 Annual Report to Congress wherein is detailed the efforts the NTSB went through to persuade the FAA to upgrade and expand the requirements concerning these truly invaluable accident investigation tools. It must be understood that without state of the art recorders, valuable accident data will be lost and effective safety recommendations are not possible.

The Annual Report notes that the FAA resisted the Safety Board's "prodding" for more than two years. Then, suddenly, the Secretary of Transportation yielded and announced new requirements. The NTSB told Congress: "The announcement came after a commuter plane accident \* \* \* which dramatically helped focus congressional and public attention on the stalled flight recorder rulemaking."

Within two weeks of the accident there was a congressional hearing on the accident. Within two weeks after that the FAA issued the new rules. Why were the safety rules on the FAA's backroom shelves? Why did it take an accident to make them public?

#### COLLISIONS ON THE RUNWAY

The worst accident in aviation history occurred on a runway in the Canary Islands. Five hundred eighty-three persons died when two Boeing 747s collided in 1977.

In the United States, in 1985, 501 persons were aboard two DC-10s and easily another thousand were in an immediate zone of risk when the aircraft missed a high-speed runway collision by less than the width of this hearing room.

By the time of this near collision caused by the failure of air traffic controllers, six years had passed since the Safety Board had asked the FAA to study the problem of runway incursions and to take remedial action. The study was completed, but no remedial actions undertaken. Other accidents and near accidents followed before the FAA began to deal with what is, to this date, an ongoing problem.

#### DE-ICING RULES

Twenty seven persons were killed in March of 1992 at New York's LaGuardia Airport when USAir Flight 405 failed to take off because of apparent wing icing.

Two months later, Glen Kessler, Newsday's aviation reporter, quoted FAA Associate Administrator Anthony Broderick as saying the FAA would not tolerate "business as usual." According to Kessler's report, Mr. Broderick indicated the FAA had pledged to propose sweeping new air safety rules within two weeks for flying in icy weather.

How could the FAA accomplish this unless the rules were on the FAA's backroom shelves? Why hadn't the FAA taken action earlier in response to NTSB recommendations? Why did it take one more crash? One more benefit of hindsight for the FAA to begin to act?

#### CONCLUSION

The goal of accident investigation is to prevent recurrences. The mechanism involves recommendations by the NTSB and good-faith responses by the FAA. When the FAA is not suitably responsive to the NTSB the question arises as to whether Congress, on behalf of the American public, is convinced that the FAA's cost-benefit analysis is an appropriate one.

Congressional oversight requires informed vision. The Commission Senator Presler has proposed would provide the insight for proper oversight.

Senator FORD. Thank you.

Mr. Wolk.

#### STATEMENT OF ARTHUR WOLK, PHILADELPHIA, PA

Mr. WOLK. Thank you, Mr. Chairman. I would like to thank the committee for inviting me to attend, and I would like to mention that I did not ask to attend these hearings, I was invited to attend these hearings, and therefore I would also ask that I not be slandered by anyone before I begin my testimony by making inquiry into how much money I make in investigating air crashes and in litigating air crashes on behalf of my clients.

I will tell you, however, that I do have probably the only experience in this room in actually doing a hands-on investigation in airplane crashes, because I have investigated hundreds of them, and I have investigated hundreds of them after the NTSB has completed its investigation, and the typical NTSB investigation consists of a person who is perhaps a pilot, who has attended a 2-week NTSB how-to-do-it investigation school, and then is sent out to go investigate an air crash which has cost many, many lives, and the results of which are so important that they may affect many other lives in the future.

Senator FORD. Would you suspend for just a moment?

Senator McCain.

Senator MCCAIN. Mr. Chairman, I would just like to object to the statement of the witness that I somehow slandered him by saying that we would like to know how much money he makes from aircrafts' "investigation and trial." I do not understand how that would be construed as slander, and I would ask the chairman to address that issue.

Senator FORD. I am going to get me a lawyer. [Laughter.]

Senator MCCAIN. Then, Mr. Chairman, let me just say that this is typical of what this witness has said in the past and I intend to bring out in my questioning of his previous statements. But the fact is, to ask how much someone makes from representing people in these cases, is clearly not slanderous. His accusation is typical of what this witness has said and written in the past.

Mr. WOLK. Mr. Chairman, I think the difference between my perspective is that Senator McCain does not know that I have spent millions of dollars of the money that I have made in attempting to promote aviation safety, and that is a different perspective than somebody who took dollars from the savings and loan executive so he could influence Government which has cost each taxpayer bil-

lions of dollars—in fact, not billions, but tens of billions. No, I did not do that, Senator McCain, but you did.

Now, please do not attempt to malign me when I am here at my own expense and at the invitation of Senator Pressler's staff to try to inform Members of Congress so they will understand the flaws in the investigatory system of airplane accidents so we can all have a safer environment, including for you and your family and your supporters and the savings and loan executives, and they can fly from place to place.

Senator FORD. Now, you have gone too far. I am tired of that. I am not going to have any more of it, and I am not sure I am going to listen to the rest of your testimony.

Mr. WOLK. That is fine.

Senator FORD. Do you have any questions, Senator Pressler?

Senator PRESSLER. Yes, I do.

Mr. Harris, are you familiar with the Iowa incident and the concerns I and others have expressed about the relationship between the FAA and the NTSB? What is your opinion of how the FAA handled the NTSB's recommendations with respect to the Hartzell propeller?

Mr. HARRIS. Well, I think, Senator, that the FAA handled it in the way—if you recall the first incident occurred on my watch. I take responsibility for that, and we started the process.

As Mr. Broderick testified, without a second data point, without anything other than 60 million hours of successful and uneventful operation of these hubs, it was difficult to know exactly what we—whether or not—what the problem was, exactly.

NTSB somewhat identified two potential problems. They favored one over the other. They suggested that we have inspections and we use a nondestructive method. Since there was no nondestructive method known to the FAA, we were pursuing with Hartzell a means of finding a nondestructive method of testing that was effective.

Senator PRESSLER. Now, has the relationship between the FAA and the NTSB changed since you were with the FAA?

Mr. HARRIS. No. I was with the FAA as recently as 5 months ago. I do not think it has changed. The same players are in place.

Senator PRESSLER. Now, to your knowledge, during your tenure at the FAA, were there incidents in which the FAA declined an NTSB recommendation and reversed itself after an accident, and if so, what specific incidents can you cite?

Mr. HARRIS. I am not sure I can cite a specific incident, Senator. I think the dynamics of the relationship between the FAA and the NTSB on those recommendations with which there is some technical professional disagreement is to try and work out a negotiated position between the experts.

I mean, we could have two metallurgists who reach vastly different conclusions, given the same set of circumstances, and I think that the working relationship, as has already been testified to, is professional. I think that both agencies regard one another highly.

Senator PRESSLER. Now, if you could change the procedures of NTSB or the FAA in deciding on a course of action to alleviate a safety problem, what changes would you make? For illustrative purposes, what would those changes be in the context of the

NTSB's and FAA's actions following the 1991 incident in Utica, NY?

Mr. HARRIS. Senator, if I had to do it all over again, if I were still at the agency and had the Utica crash and faced the same fact pattern that we faced then, we would have done it the same way.

Senator PRESSLER. As someone who at one time worked at the FAA, what could you tell me about the high figures the NTSB cites with regard to FAA acceptance and recommendations?

Mr. HARRIS. I think they are laudatory.

Senator PRESSLER. Is the relationship between the FAA and the NTSB too cozy?

Mr. HARRIS. Absolutely not.

Senator PRESSLER. Mr. Furman, seemingly the FAA measures safety by accidents that have occurred. As the Dubuque incident demonstrates, it took an actual catastrophic event to pressure the FAA to act, in my judgment. It seems it does not matter to the FAA how close an accident is to occurring. If it does not happen, the FAA does not act, in some instances.

Should the FAA be keeping score this way, and would you comment on that general concept?

Mr. FURMAN. The general concept, as I understand your question, is How does the FAA keep score about the margin of safety that exists in the aviation system?

I think that the FAA keeps score by accidents. That is the measuring stick for the safety of the system. The problem with keeping score by accidents, I believe, if you might analogize it to the highway environment, is that a bald tire is a safe tire until the time of the blowout.

If accident analysis is such that we have discovered a problem, we should be dealing with that problem. If we are looking at it and saying well, there is still a margin of safety, the question then is, how much of a margin?

Senator PRESSLER. How does the FAA measure safety, in your judgment, and is it appropriate?

Mr. FURMAN. The FAA safety measurement and Government statistics are measurements of accidents. The Safety Board benefits from looking at incidents, as well, and sometimes the recommendations arise from incidents. We do not necessarily have to have loss of life for there to be an important safety message taken from the event.

Senator PRESSLER. Now, were the actions the FAA took with regard to the Dubuque and Utica incidents consistent with the FAA normally handles NTSB recommendations?

Mr. FURMAN. I think it was perfectly consistent. I think it was consistent because the FAA mandate is that it try to assess the cost and balance that against the benefits to be achieved by implementing recommendations. So, that in addition to just looking at the safety aspects or implications of the Safety Board recommendation, the FAA also does its cost-benefit analysis. And I believe it is a proper role for this committee and the Congress to investigate that cost-benefit analysis and determine if it agrees with it.

Senator PRESSLER. I have cited some earlier examples of the FAA acting immediately after an accident occurs, and I am glad that they did. But in this instance they had two letters from the NTSB,

or at least a letter sent twice. Now, they seem to have a pattern of acting before the report is finalized, and I am glad that they do, but there is so much emphasis on put on do not reach any conclusions until the final report is issued, but yet in many of these instances the issue their directive 10 days after the accident. I am glad that they do. Is that a pattern at the FAA?

Mr. FURMAN. A pattern is a strong word, but I can cite some examples in which there have been accidents and there has been then a spread of sometimes several years. In one case I am thinking about, a spread of perhaps 10 years before a subsequent accident finally caused the FAA to take off the shelf some recommendation responses—that is, to issue an airworthiness directive or to implement the study or to do something.

I do have a concern, for instance, the cockpit voice recorder and flight data recorder issues which are still, I believe, on the Safety Board's most wanted list, have taken years and years and years for the FAA to be appropriately responsive.

The Safety Board has had a concern about collisions on runways, runway incursions, as they are called. The worst accident in history, as I know you are aware, occurred in the Canary Islands. It was a runway collision. The Safety Board became concerned about the possibility of runway collisions in this country.

Many years ago, the Board conducted an investigation, did a special study on the issue. But safety recommendations concerning runway incursions or runway collisions still remain on the Safety Board's 10-most-wanted list. They are not satisfied, to my knowledge, with the progress from the FAA.

Senator PRESSLER. If you could change the procedure of the NTSB or the FAA in deciding on a course of action to alleviate a safety problem, what changes would you make? For illustrative purposes, what would those changes be in the context of the NTSB's and FAA's actions following the 1991 incident in Utica, NY?

Mr. FURMAN. First, Senator, I would respectfully say I would be offering one opinion on this, and I think therefore it is appropriate to say at this point that the idea of a commission to look into that question is something that would benefit this committee and the Congress. I would like to see what the assessment of other professionals is.

My own view is that perhaps there should be an appeal mechanism, perhaps to the Secretary of Transportation. Another possibility would be that if the Safety Board feels that it is being frustrated by FAA inaction that it could send a copy of correspondence to this committee, to the chairman, to you as the ranking member, and disclose that difference and ask, perhaps, that there be some explanation provided to this committee.

Senator PRESSLER. What exactly do the figures tell us, when the NTSB says that 80 percent of the recommendations are approved by the FAA? Is that accurate? I think this morning the figure was 70 percent, between 70 and 80 percent.

Mr. FURMAN. In my experience, it has hovered around 80 percent, and it suggests—well, perhaps if the number were any higher in terms of approval, in terms of FAA responsiveness, the question would be asked whether the Safety Board was asking for enough.

If it was possible for the FAA to do everything the Safety Board asked, I do not think that we would be having a worthwhile recommendation process.

I think the fact that the number is not higher does reflect the kind of tension, the cost-balancing analysis, that Representative Johnson spoke to when he was here earlier. It is appropriate for the FAA to take a look at what the cost is. It is appropriate for the FAA to make the assessment of what the public interest is. It is also appropriate for this committee to conduct oversight as to that decisionmaking.

Senator PRESSLER. All right. Let me ask you this: Is the relationship between the oversight committees and the FAA and the NTSB too cozy?

Mr. FURMAN. I do not believe so. I think that the Safety Board conducts independent and truly independent accident investigations. It makes recommendations, and witness these hearings, it makes recommendations that the Safety Board believes in strongly but the FAA just as righteously disagrees with them. I do not think it is a cozy relationship, I think it is a very close professional relationship, and the people who work at the Safety Board and the FAA are professionals interested in aviation safety.

Senator PRESSLER. I know that they are, and there are many fine people who work long hours. And it is the same problem that we have with peer review and giving grants out, scientific grants. We have established the EPSCOR program finally to help the small universities get a part of it because the professional people deciding on peer review among the major universities and the Mississippi Valley universities and the California universities, they all know each other, they work together, they are all highly trained professionals, but they get so comfortable with each other that anybody who is not in the system does not partake, so we have had to pass legislation. In some ways, I have a feeling the professional relationship is kind of like the peer review that springs up among these major universities. Is that a true theory? And if it is true, how could we deal with it?

Mr. FURMAN. Senator, I think the answer is in looking at the question from the point of view of a commission, looking at the question in terms of what kind of oversight can this committee impose upon the FAA. It is clear to me that if we had a runway collision of the kind that we had in Tenerife, if we had one in this country where 300, 400, or 500 people were killed, it would be no doubt that there would be intensive scrutiny over the 10-year period in which the FAA has been considering steps to improve the situation of runway safety.

We had an in-flight fire in Riyadh, Saudi Arabia. It did not make the U.S. statistics, but 301 people died on an aircraft that landed safely. But they died because fire had spread through the cabin. The cabin flammability standards are just not what they should be.

A GAO study that the chairman requested, and which was delivered earlier this year, reported that by the end of the century there will still be 45 percent of the fleet that will not meet the new flammability standards, the standards that are required of new aircraft.

If we have a tragedy involving one of the aircraft in that 45 percent, the oversight hearings at that point will call into question the

FAA's judgment about cost benefit. That is the role that I would hope this committee would have before we have such tragedies, not afterward.

Senator PRESSLER. Now, in my earlier line of questioning on the ice on the DC-9's, where there were three airline crashes, and again, part of this pattern until flight 405 occurred at La Guardia Airport, the FAA decided to act shortly after that crash, within a month, before the report was finished but within a month, and I think it was very appropriate that they did act. But they could have acted before, based on the information they had, I think. What is your assessment of that? Is that analogous to Governor Mickelson's crash?

Mr. FURMAN. I am concerned. I did mention that in my testimony. It struck me that Mr. Broderick did say—at least I read it in one of the New York newspapers where I live—Mr. Broderick did say we are not going to tolerate business as usual, and within 2 weeks of that crash he announced that there would be new regulations for deicing put into place. And that begs the question why that announcement did not come 2 weeks before the crash or 2 months before or a year before.

It also raises the question of the applicability of the standard for the DC-9 to this aircraft. They were both of a solid-wing design, and one could have extrapolated, it seems to me, from the DC-9 to the Fokker aircraft. That was not done, but the FAA acted immediately thereafter. Again, why not before, why after? That is a question for this committee.

Senator PRESSLER. Do you think that that was just business as usual at the FAA?

Mr. FURMAN. It is, to my way of thinking, too often the case that it takes—I think your opening statement used the term “the tombstone effect.” I think too often it takes a highly visible accident to motivate the FAA to take something off the shelf and to weather the storm that may be coming from industry that will object to the high cost of some safety improvements.

The industry is going to say we disagree with the cost-benefit analysis. After the subsequent accident, after there is blood on the street, so to speak, then the industry cannot protest and the FAA, I think, is insulated from that. And I think it is unfortunate if the FAA feels it has to wait until we have the runway incursion, until we have the aircraft fire, until we have some disaster, to have the backbone to put these regulations out.

If they can come out on the heels of an accident, it seems to be they should have been promulgated before that.

Senator PRESSLER. Now, can you explain what the NTSB 10-most-wanted list is?

Mr. FURMAN. The NTSB 10-most-wanted list was a creative effort of a previous chairman to spotlight issues that were of continuing extensive duration and not implemented. Now, the 10 most-wanted covered all the modes of transportation. There were three or four of them involving aviation safety, and the point was by doing something like the FBI's 10 most-wanted, the administration at that point thought they would attract public attention, perhaps congressional attention to it, and spur the FAA to quicker action.

Senator PRESSLER. Now, in your testimony, you mentioned cabin material flammability, fighting cabin fires, cockpit voice and data recorders, runaway collisions, and deicing rules. Can you give a brief summary of why you believe these issues are relevant to our inquiry and the idea of a commission to look at the FAA-NTSB relationship?

Mr. FURMAN. I have mentioned those, as well as the incident involving Eastern Air Lines, because I think what this committee should be looking at is the question of FAA responsiveness to recommendations. The matters that I have highlighted are examples where the responsiveness has been, I think, slow, and perhaps one could argue at a measured pace, but I think too slow in view of the fact that there are grave risks out there that should be addressed more forcefully.

And I suggest that if any of these issues such as the failure of there being a flight data recorder on board an aircraft to determine the cause of an accident, or a cabin fire, or a deicing accident, or whatever, then the FAA will be able to move more quickly and will move more quickly, if history is any guide.

Senator PRESSLER. Thank you. Mr. Chairman, I have two or three more questions, but I would like to give other people an opportunity.

Senator FORD. Do you want to submit those for the record?

Senator PRESSLER. I may. I will decide at the end.

Senator FORD. Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

Mr. Chairman, I paid attention to your statement, and I note that you listen to many of the questions, and I note that you listened to many of the questions that Senator Pressler was asking Mr. Furman. Would you have a different answer to some of his questions, or might you agree or disagree? Obviously, but not of every question, you might want to make some points that you either agree or disagree with Mr. Furman's responses.

Mr. HARRIS. Well, one of the things that struck me as I was listening to some of the questions was that Mr. Furman was talking about the fact that we seem to measure safety by the number accidents. The corollary to that is that the absence of accidents would then to equal safety, and I do not think it has been the position of the FAA ever that the lack of accidents represents safety. And I think that the agency, certainly while I was there, was always working diligently, even in the absence of an event or an accident, to anticipate how they could, in fact, enhance the safety of the system.

On the DC-9, DC-10, and the F-28, I was the acting administrator at the time of the La Guardia incident. I flew up there the following morning, viewed the wreckage, came back, reviewed what we had done. The agency had been moving forward on this issue. It was difficult to connect these. It was easy to say icing was it, but it was a problematic answer.

We had been looking at things like the plumbing of fuel in those wings. In the DC-9 and DC-10, for example, we suspected that one of the reasons those wings iced was not the design but rather the circulation of fuel. Airplanes coming down from altitude with supercooled fuel circulating through the leading edges of those

wings. We were trying to find a technical solution that was, in fact, cost effective.

At the time of the La Guardia accident, I think that we had reached a point where we said there has got to be another way, and I asked for a worldwide conference within 30 days, which was held—700 attendees were there. They discussed all the known methods of icing and deicing and icing procedures and chemicals used for this. These things are not without their ancillary problems.

We got into deicing fluids, for example, and we raised the question of well, what happens—what does the EPA have to say about the deicing fluid that has run off? Does, in fact—do multiple deicings in the system and the icing fluid that is left on the runway create its own safety hazard?

So, I think that as I said in my opening remarks, these are complex problems, and oftentimes the public tends to focus, the newspapers and the press, tend to focus on these things in a very simplistic way. And I believe it is the responsibility of the FAA to see these problems in their entirety and see the connections between them, and I tried to make that point in my opening testimony.

Senator MCCAIN. I believe Mr. Furman stated, and please correct me if I am wrong, that it is too bad the FAA has to wait until there is an accident until they take action. Is that a correct quote, Mr. Furman?

Mr. FURMAN. While it is clear that accidents are the triggers for safety improvements, my comment was that it seemed to me that too often they waited for the second accident to confirm what was learned by the Safety Board after the first accident.

Senator MCCAIN. Thank you.

Mr. Harris, do you have a response to that?

Mr. HARRIS. Well, this is sort of like judging a man by his one bounced check, even though he may have written thousands of good ones. I think that the public tends to focus on those actions the FAA takes apparently after some incident, because they connect the two. What is not in evidence and what easily could be provided to this committee is the work that goes on, on a day-to-day basis, by the FAA to take various actions where there is no focus of an event to connect it in the public mind.

Senator MCCAIN. Finally, Mr. Harris, Mr. Furman brought up the issue of the flammability of the interior of commercial aircraft, and he states that—and again correct me if I am wrong, Mr. Furman—that 45 percent of the U.S. commercial aircraft will not be safe—will not have installed the less flammable material by the turn of the century; is that correct?

Mr. FURMAN. That is what the GAO report said.

Senator MCCAIN. What is the response to that, Mr. Harris?

Mr. HARRIS. Senator, I am really not prepared to respond to that. I know that we have the standards and there is a phase-in period, but I do not recall exactly what it is. So, I really could not comment on that.

Mr. FURMAN. Senator, I can simply tell you that I had the opportunity to read the General Accounting Office report. Its headline was "Slow Progress in Making Aircraft Cabin Interiors Fireproof." It reported that since 1985, 22 percent of the fatalities in U.S.

transport crashes involving fire were the result of smoke and fire. And it concluded that the FAA had predicted a higher rate of retrofitting.

In fact, the industry has not come forward with the retrofitting at the rate the FAA anticipated, and the conclusion is—and I think this is pretty well a quote—“is the fleet will likely not meet flammability standards by the end of the century.” And they were saying 45 percent of the fleet will likely not meet the standards.

Senator MCCAIN. Thank you very much, Mr. Furman.

Mr. HARRIS. Senator, I cannot remember the last time I saw a GAO report that praised the FAA for achieving anything on time or within budget.

Senator MCCAIN. I have seen several, but I will agree with you that it is not generally the rule.

I thank you, Mr. Chairman. And I thank you for your courtesy, Mr. Chairman.

Senator FORD. Thank you.

Senator Daschle, do you have any questions?

Senator DASCHLE. Mr. Chairman, I do not.

Senator FORD. Do you have any more questions?

Senator PRESSLER. Mr. Chairman, I wonder if I could raise this. I abhor very much what Mr. Wolk said about my distinguished colleague. And I speak from having been the No. 1 target of the trial lawyers in my last election. I am a cosponsor of Nancy Kassebaum's legislation, and I am a product liability guy.

Would there be a possibility we could take a written statement strictly limited to the issues of this hearing from Mr. Wolk? And I say that because he has been very active in this field.

Senator FORD. Well, I would say to the gentleman, I had it all ready to put into the record, and I would like for the record to reveal that Mr. Wolk was not asked to leave. He left of his own volition. And I am very pleased to submit and have in the record from Arthur Alan Wolk, Esquire, of Wolk and Genter, from Philadelphia, PA, the statement that he submitted to the committee. And it will be a part of the record.

[The prepared statement of Mr. Wolk follows:]

#### PREPARED STATEMENT OF ARTHUR ALAN WOLK, ESQ.

##### STRANGE BED PARTNERS

The Federal Aviation Administration is usually just asleep at the switch when it comes to aviation safety, always finding itself a little behind and too late with safety improvements on aircraft. Most often it is only after major accidents take a barge toll of human life, and the FAA becomes publicly embarrassed that it does something.

Some good examples are the Agency's failure to order repair of the baggage doors of the DC-10 such that over 300 people had to die before the FAA finally did its job; its failure to mandate stronger seats and better flammability standards in airline aircraft interiors until recently, such that thousands of people needlessly perished or were injured in the thirty years the FAA studied the issue; its failure to implement wide body aircraft cargo hold fire extinguishing standards so that hundreds of people died in uncontained baggage compartment fires; the failure to mandate sound aborted take-off braking requirements and testing, such that many passengers have been killed when aircraft cannot stop before leaving the runway; its failure to impose uniform airport taxiway and runway marking systems for airports such that runway incursions due to confusion has resulted in many deaths. The list could go on and on, but experience shows that the FAA is simply out to lunch when safety needs come calling.

The Federal Aviation Administration was created in 1958 by the Federal Aviation Act. That Act mandated two principal duties for that Agency. The first was to insure the safety of flight, but the second was to promote, encourage and develop aeronautics. That seems odd that the same agency charged to make flying safe is also supposed to promote the business of flying. The Federal Aviation Administration's means of fulfilling this responsibility has been to punt. When it comes to certifying aircraft for flight, the Federal Aviation Administration sets only minimum standards. After setting these minimum standards, once every thirty years or so, without any consideration for technology changes and improved manufacturing process which make more rapid standards changes and simplified certification procedures important, the FAA then abdicates most of that responsibility to the manufacturers it is supposed to regulate.

The Federal Aviation Administration has created a bunch of acronyms for designating people paid for by the industry to do the FAA's police work. It lets manufacturers of airplanes hire their own designated engineering representatives (called DERs), and others to certify to the FAA that the aircraft meet FAA minimum standards. The FAA then sends some dolt to spot check the paperwork that the manufacturer's own employee has submitted. The results are predictable. Sometimes the FAA will even have a representative at the manufacturer's plant who inevitably makes sure that all of the required paperwork is there, no mind that the stuff written on the paper may be false.

The FAA occasionally conducts audits of the manufacturers to see if they are complying with the regulations. Even after finding that the manufacturers many times are not in compliance, the FAA continues to allow two things to go on unimpeded: the production of airplanes and their engines, and the job of the on-site inspectors who failed to report the deviations from the regulations in the first place.

Everyone can remember how the Federal Aviation Administration ignored Eastern Airlines union cries that maintenance was flawed and that there were dangerous airplanes allowed to fly. A blue ribbon FAA panel from the headquarters in Washington went to Eastern and, after purportedly thoroughly checking, pronounced its maintenance sound and in compliance with the regulations. It was only after Eastern went bankrupt that it was learned that the paperwork was false, and the required maintenance was not really being performed. This was not discovered by the FAA, but by admissions from disgruntled ex-Eastern employees, people who had told the FAA for years before the very same thing, but were ignored.

While it would appear incomprehensible that the FAA could have missed so much at Eastern, perhaps one might ask whether the FAA's role of promoter of aeronautics got mixed up with its role as enforcer and insurer of safety \* \* \* or were there other motives?

For those of us who litigate against aircraft manufacturers for the benefit of families who were killed or injured, the litany of criticisms by the defense go on and on. Charges of ambulance chaser, destroyer of aviation, prostitute or anything else one can dream up are frequently levelled at lawyers who represent these families. But unsatisfied with just epithets, the aviation industry, with the assistance of Senator Nancy Kassebaum and Congressman Dan Glickman of Kansas, have tried unsuccessfully to get a General Aviation Tort Reform Bill passed, which would insulate some aircraft manufacturers for liabilities from defects, even though the manufacturers have misled the Federal Aviation Administration, however willingly it was misled, during certification of the aircraft. In fact, as to some classes of aircraft, the congressmen want to insulate manufacturers altogether.

The Bill has been unsuccessful in getting out of committee, the charge being that the trial lawyers lobby is preventing that. The reality is that some congressmen think that the protection requested and afforded by the Bill is unwarranted. Whatever the reasons, the bill isn't law yet!

Frustrated by its inability to get a windfall of liability protection and upset that all the money spent on lobbyists and otherwise hasn't worked, the Administration has come up with a new tack for its multi-billion dollar aircraft company patrons. It has given the Federal Aviation Administration yet a new task to go with the two that the FAA has already demonstrated an uncanny ability to fail miserably at. This one is to interfere directly in private litigation by persons injured or killed in aircraft accidents so that manufacturers of aircraft can claim, and the FAA can support them, that once the FAA certifies an aircraft as airworthy, no court or jury can second guess that certification by determining that the aircraft is defective.

Indeed, as the FAA would have it, even if the FAA relied on false information or ignored false information which it knew or should have known was false, or later learned that the information was false, or later learned that it was wrong in certifying the aircraft, or later learned that the aircraft was not performing in the field

and was defective, so long as the FAA did not lift the certification, no one could sue the manufacturer for a defect.

Imagine, none of the families of the 343 passengers who lives were lost when a DC-10 certified by the FAA crashed straight down into the Paris landscape could sue the builder of that aircraft or the defective baggage door latch. No one who lost a family member aboard the DC-10 that crashed in Chicago in 1979 killing hundreds could sue. No claims against General Electric or McDonnell Douglas for the explosion of its engine aboard United Airlines Flight 232 killing 111 people in Sioux City, Iowa in 1989 could recover for those deaths or injuries. Indeed, even though the FAA does not have two airports that are marked alike, no one could even sue for a runway collision because the airport was built to minimum standards.

The Administration has gone further still. Not satisfied to prevent accidents by getting the FAA to do its job by forcing aircraft manufacturers to build safe airplanes, by forcing airlines to maintain them properly, and requiring flight crews to operate in accordance with the regulations, the FAA's Chief Counsel recently held a meeting by invitation only. The purpose of that meeting was purportedly to discuss not pending legislation, but to review past efforts and to discuss the current situation of general aviation products liability reform.

Who did the FAA's counsel invite? Not one lawyer or representative of those who bring claims against manufacturers of aircraft was invited. But who was the beneficiary of the government's largess, not on the subject of aviation safety, but rather on how to defeat the claims of those killed or injured in airplanes regardless of the degree of culpability? Lawyers who represent only insurance companies or self-insured manufacturers of aircraft and components or airlines and their insurers were invited, insurance companies that insure manufacturers of aircraft and components, the government lawyers who defend the government when it is sued due to an aircraft accident, the legislative assistants for those congressmen supporting the General Aviation Tort Reform Act, lawyers who work regularly for aircraft manufacturers in-house, general aviation manufacturers trade association representatives, and the Aircraft Owners and Pilot Association, which supports the legislation.

Not one person who is opposed to the legislation or who could bring facts to bear on the lack of justification for it was invited.

Worse yet, what came out of the meeting was a nightmare that only a movie or a book on industry's corruption of government could adequately detail. The same industry that has to comply with only "minimum standards" and then can use its own employees to feed the FAA any information it wants to get certification, now wants the FAA to assist it in defending itself in product Liability suits. It wants the FAA to send a representative to tell judges and juries why the federal government has preempted the field of aviation, and that once an airplane is certificated, it cannot be defective.

Put another way, industry wants to be able to lie to the FAA to get and maintain certification, on only a minimum standards basis, then let the incompetence of the FAA allow industry to get away with murder so that when the inevitable maiming and killing occurs due to an aircraft defect, the FAA can come to court to swear for the manufacturer. God help us!

But industry's appetite was not satisfied there. It also wants the probable cause determinations of the National Transportation Safety Board reports to be admissible in court. When Congress established the National Transportation Safety Board as an independent agency of government to investigate fatal aircraft accidents, among others, it prescribed that the determination of the NTSB as to the cause of an accident was not admissible in a court of law. There was good reason for that. Congress knew that the process of aircraft accident investigation would inevitably involve the manufacturer, and the result of that involvement might be a directed or biased result in the manufacturer's direction.

As it turns out, not only do the NTSB determinations typically blame the pilot for aircraft accidents, but in general aviation accidents in particular, the investigation is usually finished in a day or two by one man who selects persons to assist him as parties to the investigation. Who are these persons who assist? The aircraft and engine manufacturers' representatives. Where is the powerplant torn down to see if it contributed to the accident? At the powerplant manufacturer's establishment. Who represents those killed or injured in the investigation? No one.

One of the manufacturers and its insurer invited to attend the FAA meeting have a neat scam going. When one of the manufacturer's planes goes down, its insurance company investigator carrying one of the manufacturer's cards becomes an instant manufacturer's representative and party to the investigation. Through a complex system of payments between the manufacturer and its insurance company, the investigator looks like an employee of the manufacturer, but really he is there to protect the financial interests of the insurer. No wonder the NTSB often concludes pilot

error! Since insurers would not be permitted to participate if they disclosed their actual identity, this little game allows the system to be corrupted because government winks its eye at the procedure.

What else do the manufacturers want? They want the FAA to require aircraft owners to have insurance so manufacturers won't be a target. They want the FAA to come to court to defend that Agency's decision to ignore or decline to adopt the National Transportation Safety Board's safety recommendations, even though the manufacturers might still ignore them without an FAA mandate to comply.

There were a score of other items on the wish list of aircraft manufactures to absolve themselves of responsibility for defective products. But with the assistance of the FAA, thank you, the worst of all requests with which the FAA appears to concur is the direct interference with due process rights of litigants by the government. In short, the United States government is considering joining in on the side of aircraft manufacturers, the very ones that it has completely failed to regulate, to try to help them beat the claims of widows, orphans and others killed or injured as a result of the collective neglect of government and industry. Our government, and the FAA in particular, is truly out of touch when it continues to gang up on the people it is supposed to protect.

Senator FORD. I hope that will be satisfactory, even though he does do a 180-degree on you as it relates to product liability.

Mr. FURMAN. Mr. Chairman, if I might respond to what Senator McCain asked me before. There is one other point. In the 1987 annual report to Congress by the National Transportation Safety Board, the Board itself used the term "prodding" in describing that the FAA had resisted the Safety Board's prodding for more than 2 years on the issue of cockpit voice recorders and flight data recorders. And in that report, the Safety Board said that the Secretary of Transportation yielded, and announced new requirements.

The NTSB told Congress, "the announcement came after a commuter plane accident which dramatically helped focus congressional and public attention on the stalled flight recorder rule-making."

That is one, I think, crystal clear example—not my view of it—but the Safety Board's own view of it within an annual report to Congress. There are other examples within the annual reports of which you could, I am sure, avail yourself.

Senator MCCAIN. And may I just say, Mr. Furman, in response to you, I totally agree with that. And I think that there have been cases exactly along the lines you cited in other cases. I think you and I would be in agreement that the tens of thousands—I do not know how many people who work for the FAA—Mr. Harris?

Mr. HARRIS. 53,000.

Senator MCCAIN. 53,000 people do a good job and work very hard at their jobs. Mr. Wold states: "industry wants to be able to lie to the FAA to get and maintain certification, on only a minimum standards basis, then let the incompetence of the FAA allow industry to get away with murder so that when the inevitable maiming and killing occurs due to the aircraft defect, the FAA can come to court and swear for the manufacturer. God help us."

I do not think that that is an accurate depiction of the FAA's performance either.

Mr. FURMAN. I hope you are not quoting that to me with any thought that I subscribe to any of that.

Senator MCCAIN. No. That was from the witness who left.

Mr. FURMAN. That was raving.

Senator MCCAIN. Thank you, Mr. Chairman.

Senator PRESSLER. Could we leave the record open for a few additional questions?

Senator FORD. Why do we not do this. The witnesses were told, as were the others, that there would be written questions submitted to them. We will ask them to respond in a timely manner.

I have just one question I want to ask. Mr. Furman, when did you and the Eastern employee that you said you represented notify FAA about the problem that you referred to in your statement—what year, month or date was that?

Mr. FURMAN. I can get the exact timeframe, but it was in September of one year that we went to the U.S. attorney's office. We had to get—because I am an attorney in private practice, I had to first get immunity for my client.

Senator FORD. Yes, I understand that. But what year? September of what year?

Mr. FURMAN. I believe that was 1988, but I will check that.

Senator FORD. I would like to have that for the record. And there are no further questions. There is no finale to this.

The hearing is adjourned.

[Whereupon, at 11:35 a.m., the hearing was adjourned.]



## APPENDIX

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### PREPARED STATEMENT OF SENATOR PRESSLER

Mr. Chairman, thank you for holding this important hearing today. It is sad and disturbing for me that we had to call this hearing—painfully sad but absolutely necessary. We are here this morning to investigate whether or not the National Transportation Safety Board (NTSB) and the Federal Aviation Administration (FAA) together are performing their safety functions to the fullest extent of the law.

As we all know, tragedy brought us together today. On April 19, 1993, near Dubuque, Iowa, the governor of my home State and seven prominent South Dakota business leaders lost their lives in what appears to have been a preventable accident. We are here today to learn from this tragedy. We are here holding the hope that one day we can look back and say our coming together helped to prevent future tragedies.

We have learned much already. We have learned the NTSB repeatedly urged FAA action based on an NTSB investigation of a prior incident over Utica, New York, which had not resulted in any fatalities. The aircraft involved was the same type of aircraft that crashed in Iowa. As recently as March of this year, the NTSB urged an examination of similar aircraft in order to prevent what its Chairman called "a catastrophic accident." Yet, the FAA did not act.

We also have learned that in far too many cases, the "tombstone effect" pressures the FAA to take action. In other words, it seems that it takes a fatal accident to serve as a catalyst for FAA action. That certainly appears to be the case with respect to the Iowa crash. In fact, the FAA admitted to me that it took the Iowa crash, not the NTSB recommendations, to ground similar aircraft. The time is past due for action by this government to address these issues. We may not be able to prevent all aircraft accidents. However, we must ensure that our resources are used fully and effectively to prevent the preventable. That is not occurring today.

How do we know it is not occurring? Mr. Chairman, since the Iowa crash, I have received phone calls and letters from individuals in and outside of the aviation industry. Many have expressed strong concerns regarding the relationship between the FAA and NTSB. Representative of these concerns was a letter I received from C.W. Cole, president of a multinational aviation consulting firm. He stated:

During my 38 years of involvement in aviation, I have been an increasing antagonism between agencies mandated to cooperate in the best interests of public safety. This attitude must be corrected for the best interests of all concerned. I am also convinced from my many years of involvement in the international aviation field that there is a great lack of communication between the United States' governmental agencies and their foreign counterparts. More open communications could be very beneficial to our safety efforts. accidents in foreign countries involving small aircraft produced in the U.S. and certified for production by the FAA are virtually ignored by our authorities.

We can learn from Mr. Cole and other experts in the field on how best to enforce effectively small aircraft safety. We can learn from those here today. If there is one overriding question that I ask all the witnesses to think about and answer, it is the following: How can the federal government best use its agencies and resources to ensure safety through prevention, rather than reaction?

What can we learn from current law about the relationship between the FAA and NTSB? At present, the law clearly puts the ultimate responsibility for aviation safety enforcement on the shoulders of the FAA. The NTSB can only recommend enforcement methods and applications. The NTSB has the authority under the law to provide recommendations to the FAA even if there hasn't been an accident. However, NTSB recommendations to the FAA come primarily after the fact—after there has been anything from a minor incident to a tragic accident. The law clearly states that the FAA's duty is to "prevent the occurrence or recurrence of accidents." By any reasonable interpretation, this would mean that the FAA should diligently avail

itself of all resources available to it to "prevent the occurrence or recurrence of accidents."

We cannot rationalize the problem as one of poor communications between the NTSB and the FAA. Under federal regulations, the FAA must act if "an unsafe condition" exists (Federal Aviation Regulations part 39.1). What does this mean? Technically this means that if any person demonstrates that unsafe conditions in virtually any situation involving airlines or private planes, the FAA is obligated by law to correct those conditions. The FAA even has the authority to ground any aircraft if that is the best way of eliminating the unsafe condition.

If one applies the law to the Iowa accident, the evidence is clear. The NTSB fulfilled its mission to the letter of the law. Based on its investigation of the Utica incident, the NTSB notified the FAA of what it concluded was an unsafe condition—the condition of the propeller assemblies used on the aircraft. The NTSB made it clear that unless the action was taken to correct this condition, there could be catastrophic consequences.

Bear in mind, this warning did not come from a mechanic at a maintenance facility. It did not originate from an inspector who had discovered a flaw in the course of an overhaul. This warning came from our nation's premier investigatory body on aviation safety—the National Transportation Safety Board. It wasn't just wide-eyed speculation or a hasty conclusion. It was a reporting of facts, a year after the previous incident occurred.

What happened in the FAA? By any reasonable measure, it seems the FAA should have issued an airworthiness directive to correct the unsafe condition identified by the NTSB. That's what the law requires. Was the matter forgotten on somebody's desk? Did it fall off the desk? Did it get stuck in a committee somewhere? Did the unsafe conditions fix themselves? The only thing we know for certain is that the FAA did not take the action necessary to fix the unsafe condition until eight lives were needlessly lost.

Could it be that the FAA has so completely lost sight of its safety duties and legal requirements that it does not consider a situation or a condition unsafe until it is fatal? No one could be that sinister or misguided. Yet, I must ask this question, because this appears to be what happened in the Iowa accident.

That's what we know as of today. What can we do? We can learn more about the relationship between the FAA and the NTSB. We can ask experts if we are utilizing these two agencies in a manner that best enforces small aircraft safety. Can this process be improved?

We can begin to answer this question today. But we must be realistic. This committee does not have all the answers. If we did, this hearing would be unnecessary. We cannot find all the answers in the next few hours. More must be done to investigate these issues fully. That is why I offered legislation to create a blue-ribbon commission, which would have six months to study the FAA and NTSB relationship, and make recommendations to Congress on how to utilize government resources to enforce effectively small aircraft safety.

Some have suggested my legislation will lead to more regulations, or even a merger of the two agencies. It does not do either. It simply calls on a body of experts to suggest solutions. My bill does not propose specific solutions. If there is any confusion, I have three words of advice: Read the bill. Some also have said a commission is not necessary. To those who make such a suggestion, I urge them simply to examine the relationship between the FAA and the NTSB on the Utica and Iowa incidents. The Iowa crash could have been prevented. How many preventable tragedies will it take to prompt this Congress to seek answers? For the sake of those who travel in small aircraft, I hope we won't have to wait for new tragedies. Let's begin today by learning from past tragedies. Let's stop reacting to accidents and start preventing them.

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LETTER FROM STEPHEN H. KAPLAN AND MORTIMER L. DOWNEY

MAY 19, 1993.

The Honorable LARRY PRESSLER,  
U.S. Senate,  
Washington, DC 20510

DEAR SENATOR PRESSLER: We appreciate the opportunity we had Monday to discuss with you the aviation accident April 19 that took eight lives, including Governor Mickelson's, and the steps we can take to prevent another such tragic accident. Small aircraft safety is and should be a priority at the Federal Aviation Administration (FAA).

You expressed particular concern that the interaction between the FAA and the National Transportation Safety Board (NTSB) may have involved bureaucratic friction that interfered with issuance of the appropriate airworthiness directive as soon as there was a basis for one. We have looked into the chronology in this case and found that the relationship worked as it was intended under statute, and that both agencies appear to have done their best with the information they had available. This by no means suggests that further steps would not improve safety for the public.

The NTSB was created by Congress to investigate transportation accidents, make determinations of probable cause, and make safety recommendations to the regulating agency, in this case the FAA. Congress separated the NTSB from the Department in 1975 to help assure the independence of its accident findings and safety recommendations. The responsibility for issuing safety regulations and directives is lodged separately with the FAA, freeing the NTSB from any of the balancing of issues implicit in the regulatory process, but the FAA has a statutory duty to consider and respond to all NTSB recommendations on air safety. The record shows a very high level of positive response by the FAA to NTSB recommendations, with more than 90 percent of its urgent recommendations, and more than 80 percent of all its recommendations, adopted by the FAA. DOT's Inspector General has examined the FAA's record of response and found that, except in the case of the lowest priority recommendations, the FAA has, on average, responded to the NTSB more rapidly than its guidelines specify for response.

Without making any ultimate judgment about the causes, we would like to review the facts leading up to the April 19 crash. The first evidence FAA had of a problem with the propeller in question was the loss of a propeller in flight from an MU-2B-60 aircraft September 27, 1991, followed by a safe landing. The specific model propeller had been in service for 20 years with millions of flight hours accumulated. The NTSB's investigation led to an August 1992 recommendation to the FAA that it join with the propeller manufacturer in developing a non-destructive inspection technique to examine the inner propeller surfaces for the fatigue cracking that appeared to be the cause of the failure. The NTSB recognized that disassembly to examine the inner areas could lead to maintenance-induced damage that might be more serious than the cracking it sought to locate. NTSB also recommended requiring an inspection schedule of blades in service over 3,000 hours.

The FAA responded quickly to the August recommendation by advising the NTSB on October 26 that a review of relevant information was underway. Although not mentioned in the October 26 letter, the FAA had begun discussing a non-destructive inspection technique, as recommended by the NTSB, with the manufacturer.

On January 4, 1993, the FAA provided its full response to the NTSB. The agency had examined all the relevant historical data on the propeller type and similar propellers in use over three decades and found no comparable case of cracking. The manufacturers testing showed that stress levels of the propeller area in question were acceptable, and that no metallurgical discrepancies were found in the hub material. FAA reviewed the service history of the propeller and contacted propeller overhaul shops to gather any additional anecdotal information. No cracking at all had been reported in thousands of normal maintenance sessions. Because this led the FAA to conclude the 1991 case was an isolated incident, the FAA decided not to issue a mandatory inspection directive at the time. Significantly, no method had been (or yet has been) developed to permit inspection that avoids disassembly and the possibility of maintenance-induced damage. The FAA indicated it was continuing to monitor the service performance of this propeller. On March 4, the NTSB responded and reiterated its view that a non-destructive inspection methodology should be developed and applied. The NTSB also noted concern that the FAA had not seen a need to review the design and fabrication of similar propeller types.

The FAA and the manufacturer have continued the search for an inspection method that avoids disassembly and the risk of induced damage. Many methods, including x-ray, eddy current, and ultrasonic techniques, have been evaluated and found unsatisfactory. The manufacturer has concluded that current technology is not at a stage where inspection can be accomplished without disassembly.

When the April 19 crash occurred, involving an identical model aircraft, the FAA responded within 10 days by establishing that a pattern of fatigue cracking existed, and that inspection involving disassembly must be undertaken. In view of the potential for damage in the inspection, the FAA has required that the inspection only be conducted at the manufacturer's factory laboratory. This step is intended to maximize speed and consistency of data collection as well as minimize the possibility of maintenance-induced damage. The FAA continues to work closely with the NTSB on this issue, but the engineering and other data do not suggest an explanation for the cracking and fracture.

In our review of these facts, it appears that the two agencies performed appropriately. Nonetheless, we look forward to working with Congress specifically on how the area of small aircraft safety might obtain greater emphasis. The accident statistics demonstrate that the safety record has steadily improved. The FAA believes that the high profile it gives small aircraft safety, such as its small airplane airworthiness reviews and its positive safety outreach program, contributes to the improvement. However, we should continue to pursue further improvement.

We share Secretary Peña's firm belief and the fundamental premise that the Department of Transportation is committed first and foremost to safety in the day-to-day operations of all modes of transportation. He strongly supports the NTSB in its role in the area and intends to monitor the response of all DOT agencies to the NTSB's recommendations.

In closing, we hope to have the opportunity to work with you and the Aviation Subcommittee on the continuing issue of small aircraft safety.

Sincerely,

STEPHEN H. KAPLAN.  
MORTIMER L. DOWNEY.

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LETTER FROM BERT WERJEFELT, PRESIDENT, VISION SAFE CORP.

MAY 26, 1993.

The Honorable LARRY PRESSLER,  
U.S. Senate,  
Washington, DC 20510

DEAR SENATOR PRESSLER, In response to the recent inquiry from you and your Legislative Assistant, Ann Waltner, concerning our problems with the FAA and any information we may have that is indicative of a public safety hazard in aviation, similar to the Dubuque, Iowa tragedy, I believe the attached May 25, 1993 letter to FAA Administrator Del Balzo clearly explains our experience with the FAA, our serious concerns and the profound safety problem that presently exists.

My letter to the FAA Administrator is not to be interpreted to mean that the entire FAA bureaucracy has run amok, although it certainly would appear so. The responsibility and accountability rests at the top, while, as you know, the many devoted, sincere and hardworking employees of the FAA are merely following orders.

I am also fully aware that the contents of my letter may have serious legal implications for those individuals in FAA who have willfully violated the law, and in so doing have caused the wrongful death of persons, who had been misled to believe, by the efforts of these individuals in FAA, that FAA was diligently acting to prevent the accident that claimed their lives.

Unquestionably, the tragic accident in Dubuque, Iowa has served as a strong catalytic event. I admire the fact that you have seized the moment, as a dedicated elected official to do right by your constituents and demand justice and accountability. In so doing, believe it is perfectly clear that you are also helping the nation rid itself of the unacceptable governmental abuse of the freedoms this country affords and the abuse of the trust our citizenry has in our government. Furthermore, the health of the industry vitally depends on public confidence in the air transport system and the agency that regulates it.

I wish you well and offer my continued support in your efforts to establish a commission, along with your colleagues and the Clinton Administration, to restore the public trust in aviation and the government agency regulating this industry. I am convinced that if you and your colleagues persevere the high standards of aviation safety that the public mistakenly believed were in place, will in fact, soon be in peace.

Sincerely,

BERT WERJEFELT,  
President.

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[The letter from Mr. Werjefelt to Mr. Del Balzo may be found in the committee's files.]

LETTER FROM CHARLES ROCCO

MAY 24, 1993.

Senator LARRY PRESSLER,  
U.S. Senate,  
Washington, DC 20510

DEAR SENATOR PRESSLER, I have been following the news reports regarding the MU-2 Hartzell propeller hub failure. It is indeed tragic that lives must be most before the FAA is forced to deal with propeller inspections.

During certification of propellers the FAA requires manufacturers to assign a recommended overhaul period "TBO" (time between overhaul). The overhaul consists of inspecting the entire propeller for cracks, wear, and corrosion. After inspection, components that do not meet factory specifications are repaired, replaced or reconditioned.

The only general aviation aircraft that are required by the FAA to consider the manufacturers recommended TBO as mandatory are those that carry passengers for hire. The majority of general aviation aircraft flying in this country do not fall into that category.

I have personally talked with private pilots that have owned the same aircraft for 20 or more years without removing the propeller for overhaul. Their attitude was if it's not broke don't fix it, unless they are forced to by AD notes (Airworthy Directives).

The United States is the only major country in the world that does not require by law, all aircraft owners to comply with factory recommended TBO time periods. It is a sobering thought that thousands of aging general aviation aircraft are flying with propellers that could fail in flight due to problems that may have been corrected if the owners would have had the propeller inspected and overhauled.

I urge you to support mandatory inspection and overhaul for all propellers as recommended by the propeller manufacturers with strict monitoring by the FAA.

If I can be of any help in this regard, please advise. Thank you!

Sincerely,

CHARLES ROCCO,  
Troy, OH.



# THE NATIONAL TRANSPORTATION SAFETY BOARD MOST WANTED Transportation Safety Improvements

"... a program to increase the public's awareness of, and support for, action to adopt safety steps that can help prevent accidents and save lives."

October 10, 1990

## Boating While Intoxicated

- Strengthen Enforcement and Toxicological Testing Programs to Prevent Boating Accidents

Action Needed by State Legislatures

## Administrative Revocation of Driver's License

- Pull Driver's License On The Spot Of Anyone Failing or Refusing A Chemical Test For Alcohol

Action Needed by State Legislatures

## Airport Runway Incursion

- Provide Safer Control of Aircraft on the Ground

Action Needed by the Federal Aviation Administration (FAA)

## Ground Proximity Warning Devices for Multi-Engine Fixed Wing Aircraft Of 10 or More Passengers

- Warn Pilots When Aircraft Is Too Close To The Ground

Action Needed by the Federal Aviation Administration (FAA)

## Positive Train Separation

- Require a Railroad Collision Avoidance System

Action Needed by the Federal Railroad Administration (FRA) and the Railroad Industry

## Mode C Intruder Conflict Alert in Terminal Areas

- Install Collision Avoidance Systems for Airport Terminal Areas

Action Needed by the Federal Aviation Administration (FAA)

## Fishing Vessel Safety

- Require Basic lifesaving Equipment for Commercial Fishing Vessels

Action Needed by the United States Coast Guard

## MANDATORY SEATBELT USE LAWS

- Require occupancy of cars, vans, and light trucks to use lap/shoulder belts

Action Needed by State Legislatures

## Adjustable Upper Anchor Point For Lap/Shoulder Automobile Seat Belts

- Increase Safety Belt Use and Effectiveness

Action Needed by Automobile Manufacturers

## Railroad Hazardous Materials Cars

- Require Improved Protection of Railroad Cars Carrying Hazardous Materials

Action Needed by the Research and Special Programs Administration (RSPA) and the Federal Railroad Administration (FRA)

## Human Fatigue in Transportation Operations

- Study the Relationship of Fatigue and Work/Rest Cycles in the Transportation Industry and Update Applicable Regulations

Action Needed by the Department of Transportation

## Schoolbus Safety

- Safer Transportation for Schoolchildren

Action Needed by the National Highway Traffic Safety Administration (NHTSA)

## Structural Fatigue Testing of Aircraft

- Require Testing of Aircraft to the Equivalent of Two Decades of Use

Action Needed by the Federal Aviation Administration (FAA)

## Passenger Vessel Safety

- Upgrade Fire Detection and Control, Crew Communication, and Training on Passenger Cruise Vessels

Action Needed by the United States Coast Guard

## Alcohol/Drug Detection

- Require Uniform Collection, Handling, Processing, and Testing of Alcohol and Drugs

Action Needed by the Department of Transportation

## Brake Wear on Transport Airplanes

- Require Improved Braking for Transport Category Airplanes

Action Needed by the Federal Aviation Administration (FAA)

## Heavy Commercial Truck Safety

- Improve Prevention of Accidents Caused by Fatigue, Alcohol and Drug Abuse, and Medical Problems

Action Needed by the Federal Highway Administration (FHWA) and the States

## Pipeline Excess Flow Valves

- Require the Installation of Excess Flow Valves in High Pressure Residential Natural Gas Distribution Systems

Action Needed by the Research and Special Programs Administration (RSPA) and the American Gas Association

[The Cleveland Plain Dealer, Feb. 28–Mar. 4, 1993]

## LOOPHOLES, LAWYERS; BUREAUCRATIC HURDLES SET UP INTENTIONALLY

(By Keith C. Epstein)

WASHINGTON.—Writers of screenplays, eager to dramatize the deadly failures of government, focus on secret deals between the powerful and the politicians.

More routinely, the real villain is the bureaucracy itself—constrained by a maze of procedural hurdles that can take years to overcome.

Created by Congress and President, the hurdles were meant to insure that all voices are heard and all arguments weighed—notions central to democracy.

The also give industry lawyers loopholes and allow politicians to dodge responsibility. Average citizens rarely can take advantage of the same loopholes. They don't even know about them. Insiders do, and accept the notion that a gridlocked government moves only when catastrophes happen.

The deadliest accidents "serve as the catalyst for action," acknowledges top Federal Aviation Administration investigator William Hendricks. "This phenomenon is commonly known as the Tombstone Effect."

Since most accidents aren't catastrophic, bureaucrats focus on "milestones" instead of tombstones. That's what they call procedural hurdles such as these:

1. An agency announces what it might do to enforce a law. This invites complaints. When commuter airlines griped about low-altitude alarms, the government required them only on large jets. Low-flying commuters kept crashing.

2. White House budgets weigh the public benefits and costs of the proposed remedy. All calculations are in dollars and cents, including saved lives. Too costly? The rule is weakened or killed.

3. With White House approval, the government publishes another notice of what it might do. A date is set. This again invites public comment.

4. Once comments are sorted, the agency approves, alters or abandons the proposal. Industry complaints may result in more studies or delays. Revisions stalled for a year the requirement for low-altitude alarms.

5. Again, the White House budget office has a chance to delay or halt the rule-making process. The proposal can be altered because of its effect on paperwork, families or local governments.

6. If the proposal survives, the government publishes a third notice. Any person or industry can seek reconsideration, perhaps leading to more periods of proposal and comment.

7. The rule is published at last, though usually it doesn't take effect for a year or more. Those dissatisfied with the rule can seek exemptions or challenge it in court. More years can pass.

"Frustrating," confesses John E. Tomassoni, a former top highway safety engineer. Because of the process, "the product you end up with is always less than it should be."

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[The Cleveland Plain Dealer, Feb. 28-Mar. 4, 1993]

#### DEADLY PATTERN: CRASH, STUDY, DELAY, CRASH

Experts have known since 1969 that certain planes are especially vulnerable to icing on wings. In 24 years, 123 passengers have died, most because the government failed to mandate safeguards.

*1968 crash:* Ozark Airlines DC-9, Sioux City, IA.

*1974 crash:* Fokker F-28 near Uzmir, Turkey.

*1978 crash:* TWA DC-9, Newark, NJ.

*1985 crash:* Airborne Express DC-9, Philadelphia, PA.

*Response:* NTSB memo urges that flight manuals for DC-9s stress hazards of small amounts of ice on wings. Refers to McDonnell Douglas chief engineer's 1979 study. NTSB also urges pilot to compensate for ice by taking off at different angle.

*1987 crash:* Continental Airlines DC-9 in Denver, CO.

*Response:* NTSB, convinced that ice on wings is hazardous, urges stronger antifreeze and runway deicing stations.

*1988 response:* FAA sees no need for special safeguards on DC-9s.

*1989 crash:* Air Ontario F-28, Dryden, Ontario.

*1989 crash:* F-28 in Argentina.

*1989 crash:* F-28 in Korea.

*Response:* Fokker, maker of F-28s, warns that takeoffs should occur within 15 minutes of deicing.

*1991 crash:* Ryan International Airlines DC-9, Cleveland, OH.

*Response:* McDonnell Douglas chief engineer Ralph Brumby twice warns that planes without wing slats have more problems with small amounts of ice than those with slats.

*Response:* NTSB acknowledges DC-9s, lacking slats, are more vulnerable to wing icing. Urges a closer look at F-28s.

*1992 crash:* USAir F-28, LaGuardia Airport, NY.

*Response:* FAA changes deicing guidelines.

*1993 response:* NTSB cites FAA's failure to act sooner as a cause of USAir crash.

## WHAT PRICE HUMAN LIVES?

*Even devices that save lives can't be required until the government weighs the costs and benefits.*

Government agencies predict installing low-altitude alarms on commuter airliners will save 56 people and 10 planes in 10 years.

Using statistics, the government decides "the value of a human fatality avoided" is \$1.5 million. Similar calculations are made for injuries and wrecked planes. Total savings:

**\$95.1 million**

Next, the airlines' tab: some 887 planes will need the \$14,600 devices. Including some other costs, the total bill comes to:

**\$28.9 million**

The analysis shows that investing \$28.9 million in safety devices would save \$95.1 million in life and property, and the benefit is worth the cost.

SOURCE: The Federal Register, FAA, OMB

PD/WILLIAM NEFF

[The Cleveland Plain Dealer, Feb. 28-Mar. 4, 1993]

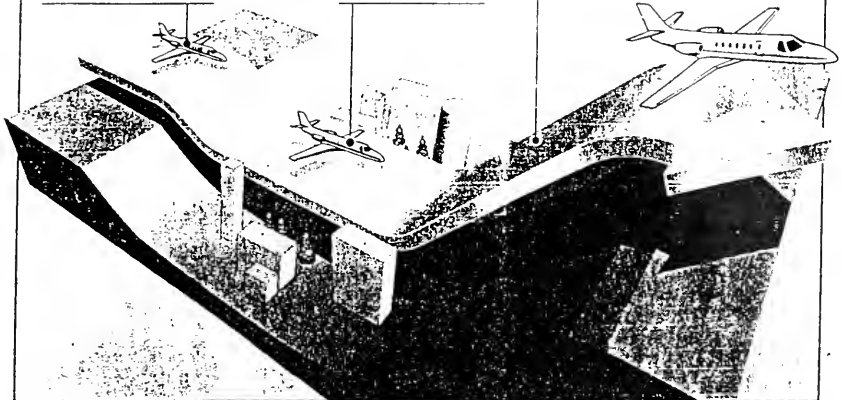
## A SIMPLE DEVICE COULD SAVE LIVES

*A relatively inexpensive alarm – first recommended in 1967 yet still not installed on most commuter airlines – could provide pilots with precious seconds to avert ground collisions.*

Unknowningly, a pilot flies too low because of instrument failure or his own mistake.

"Terrain!" the ground proximity alarm warns "Pull up!"

Quickly, the pilot ascends, averting disaster



*Twenty years have passed and most commuter planes still have no ground-proximity alarm.*

### The bureaucracy

FAA proposes alarms, changes its mind.

NTSB to FAA: "Develop them."

Devices required on large jets.

Study Alarm prevented disaster on large jets six times since 1976.

Study. Alarm could have prevented 18 commuter crashes, saved 64 people.

FAA decides to require device on commuter planes in 2-4 years

1967

1970

1971

1974

1975

1981

1985

1988

1989

1992

Southern Airways DC-9 slams into hill, killing 75

TWA Boeing 727 crashes into a hill, killing 92

Henson Airlines Beech B99 crashes into mountain, killing 14

Commuter plane crashes in Colorado and N.C. kill 21

Aloha IslandAir plane crashes into mountain, killing 29

Commuter flight crashes into mountain, kills 1

### The reality

SOURCE: Federal Aviation Administration, Safety and Data Control Inc.

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[The Cleveland Plain Dealer, Feb. 28-Mar. 4, 1993]

## SAFETY BOARD HAS NO TEETH

NTSB CAN ONLY RECOMMEND; IT CAN'T ORDER

(By Keith C. Epstein)

WASHINGTON.—Most Americans have heard of the National Transportation Safety Board. After an accident, its experts comb for clues, address the press, discover what went wrong and what should be done to prevent it from happening again.

What Americans don't see is the NTSB for what it is—a toothless tiger.

The safety board, one of the federal government's smallest entities, is powerless to require changes that would make the nation's highways, railroads, airways or shipping lanes safer. Congress made it that way in 1974, hoping an independent watchdog would prod existing agencies into action.

Thus the safety board makes suggestions in line with its mission to help "reduce the likelihood of recurrence of \* \* \* accidents."

Behind the scenes, NTSB officials plead with agencies such as the Federal Aviation Administration to adopt its recommendations. Safety board and FAA officials exchange letters, share studies and testify before Congress.

Yet even when it matters most, the safety board sometimes fails in the mission lawmakers gave it nearly two decades ago—to help “reduce the likelihood of recurrence of \* \* \* accidents.”

Federal agencies have acted on only 2 of 18 safety improvements identified by the safety board in 1990 as the nation's most urgently needed to save nearly 3,000 lives each year. The 18 were culled from hundreds of staff suggestions.

Of the two enacted, one involved detecting pilots with alcohol or drug problems. A requirement for a device warning commuter airliners when they are too close to the ground won't take effect for at least 2 years.

Among the 16 disregarded suggestions: Ground radar systems to prevent planes from colliding on airport taxiways, better testing of aging jets for structural fatigue and better fire detection on cruise ships.

Also disregarded were suggestions about strengthening railroad cars carrying hazardous materials, improved braking on commercial airplanes and a crackdown on truck accidents caused by drivers on alcohol or drugs.

The safety board's recommendations usually are ignored because it commands little respect where needed most—elsewhere in government. Experienced agency hands dismiss the NTSB as “a think tank” or “ivory tower” whose idealists are unfettered by practical concerns.

“Now that I'm over here,” said former NTSB investigator William R. Hendricks, now an FAA official, “I see \* \* \* you have to maintain a precarious balance between safety and economics. We have to satisfy the industry.”

Though responsible for conducting thousands of sophisticated investigations, the safety board has no lab of its own. Instead, it sometimes uses labs of airline manufacturers, prompting accusations of conflicts or conspiracies.

The safety board also is outgunned by business interests opposed to its suggestions. One lobby, the American Trucking Association, has an annual budget nearly equal to NTSB's \$36 million a year.

Moreover, many agencies are reluctant to require anything, let alone follow a recommendation from the safety board. In recent years, the National Highway Traffic Safety Administration—fearing lawsuits from industry—has all but abandoned regulation for recalls.

While lacking in real authority, NTSB officials often find comfort in a frequent refrain within their ranks—that the “regulate by raised eyebrow.”

Safety board officials like to emphasize that of the more than 9,000 suggestions, agencies have adopted four of every five.

The rarely boast of the average time it takes—3½ years.

That's hardly what the board means in an official publication stressing that with human lives at stake “timeliness is essential.”

Agencies, which hold little respect for NTSB, rarely provide even cursory initial replies to the board's recommendations within the 90 days required by law. On average, first replies from the Coast Guard on shipping mishaps take more than 3 years.

Records indicate that NTSB continues to wait for an answer from a recommendation so old it was addressed to the Civil Aeronautics Board, which went out of business 8 years ago.

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[Excerpts from the Congressional Record—Volume 139, numbers 70, 59, and 57 may be found in the committee's files.]

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PRESS RELEASE—PRESSLER ASKS FAA FOR EXPLANATION OF PROPELLER PROBLEM—  
APRIL 26, 1993

WASHINGTON, DC—“Why did the Federal Aviation Administration (FAA) reject repeated requests to inspect the type of propeller hub on the airplane carrying Governor Nickel son and other distinguished South Dakotans?” asked Senator Larry Pressler, ranking member of the Aviation Subcommittee of the U.S. Senate Commerce, Science and Transportation Committee. “How does the FAA decide what inspection requests to deny or approve? These questions must be answered.”

Pressler has contacted the FAA to ask for answers about the agency's decision to not investigate warnings about the propeller assembly from the National Transportation Safety Board (NTSB). Pressler also has requested the FAA to outline its procedures for handling such investigation requests. Senator Pressler has learned that on three separate occasions the National Transportation Safety Board (NTSB) urged

the FAA to investigate the Mitsubishi MU-2 aircraft and the Hartzell HC-B4 propeller. Initial investigations have indicated the crash that killed Governor George Mickelson and seven South Dakotans was possibly the result of a propeller assembly defect.

"Safety should be the FAA's foremost concern. Warning signs of potential hazards, no matter how small, must be addressed in a timely fashion. In addition to working with the FAA, I will ask the Senate Aviation Subcommittee to investigate small aircraft safety issues, as well as FAA investigative practices," said Pressler. "The loss of these eight South Dakotans was tragic. If this accident could have been prevented by timely federal government action, this disaster would have to be considered reprehensible."

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PRESS RELEASE—PRESSLER URGES DOT SECRETARY INVOLVEMENT IN FAA INVESTIGATION—APRIL 28, 1993

WASHINGTON, DC.—"What steps can we take to ensure safety in our nation's small aircraft?" Senator Larry Pressler today asked Secretary of Transportation Federico Peña. "The investigation of a Mitsubishi MU-2 aircraft crash that killed South Dakota Governor George Mickelson and seven other South Dakotans has unearthed a dangerous form of gridlock between federal agencies. The result is that questions about small aircraft safety are left unanswered," said Senator Pressler.

On three separate occasions, the National Transportation Safety Board (NTSB) contacted the Federal Aviation Administration (FAA) recommending a full-fleet exam of the Hartzell HC-B4 propeller assembly featured on Mitsubishi MU-2 aircraft. The FAA declined the recommendation. The NTSB found the FAA's response unacceptable.

"I'm not going to point a finger of blame; however, this situation raises several questions: How does the FAA determine which recommendations to pursue? And what recourse does the NTSB have if it disagrees with the FAA?" Pressler asked Secretary Peña.

"Safety must be our foremost concern. I want answers. We must get to the bottom of this bureaucratic mess," said Pressler. "It is deplorable that it takes a catastrophic accident to bring these problems to light. This matter can no longer be neglected," he said.

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PRESS RELEASE—PRESSLER: FAA ISSUES AIRWORTHINESS DIRECTIVE ON PROPELLER HUB—APRIL 29, 1993

WASHINGTON, DC.—"Safety should be the first concern of the Federal Aviation Administration (FAA)," said Senator Larry Pressler (R-SD). "Today, the FAA issued an airworthiness directive requiring the removal of the Hartzell Propeller model HC-B4TN-5 in use on Mitsubishi MU-2B aircraft. This directive answers one of the many questions raised as a result of the plane crash that killed eight South Dakotans, including Governor George Mickelson. Many questions remain. This FAA action hopefully will prevent future tragedies."

"The National Transportation Safety Board (NTSB) contacted the FAA several times to warn of a potential 'catastrophic' accident due to metal fatigue in the propeller assemblies. The FAA initially declined to investigate those warnings. Why?" asked Pressler. "We must review the decisionmaking process and the relationship between these two federal agencies. It should not take a plane crash to get a federal agency to initiate a safety inspection. Effective air safety requires that we take action to prevent crashes—not respond to them."

In related actions, on Monday, April 26, 1993, Pressler first contacted the FAA to determine:

- Why the agency rejected earlier NTSB requests for full-fleet inspection of the Hartzell propeller assemblies; and,
- How the FAA determines its investigatory criteria and procedures.

On Wednesday, April 28, 1993, Pressler urged Secretary of Transportation Federico Peña to review the interaction of the FAA and NTSB on safety issues.

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PRESS RELEASE—PRESSLER: FAA ACTION IS MIXED BAG—APRIL 29, 1993

WASHINGTON, DC.—"On April 19, 1993, a Mitsubishi MU-2 aircraft crashed killing all eight passengers including South Dakota Governor George Mickelson. My immediate reaction to this tragedy was: Could this accident have been prevented?"

said Senator Larry Pressler (R-SD), ranking member of the Aviation Subcommittee of the U.S. Senate Commerce, Science and Transportation Committee.

"The National Transportation Safety Board (NTSB) contacted the Federal Aviation Administration (FAA) several times warning of a potential 'catastrophic' accident due to metal fatigue in the Hartzell HC-B4 propeller assemblies on Mitsubishi MU-2 aircraft. The FAA declined a full investigation. Why?" asked Pressler. "This same propeller assembly could be responsible for last week's crash. If these facts are true, it is an outrage." In 1991, a Mitsubishi MU-2 with Hartzell HC-B4 propeller assemblies had a propeller separate in flight near Utica, New York. No injuries occurred. The loose blade damaged an adjacent blade and ripped a 12-inch hole in the fuselage and caused wing and engine damage. The NTSB found a fatigue crack and scratch marks in the propeller hub assembly. Federal investigators are focusing their investigation of last week's crash on a missing propeller and similar fatigue and scratch marks.

"Today, the FAA issued an airworthiness directive (AD) requiring the removal of the propeller assemblies. This is interesting news because it came not long after last week's crash. Would this directive been issued had last week's accident not taken place? In addition, the AD issued by the FAA still does not meet the full recommendations of the NTSB. What guidelines does the FAA follow in determining when and what to investigate? These are questions that should be answered," said Pressler. "Even larger questions remain. For most of this year, two federal agencies responsible for aircraft safety were at odds over a fundamental safety question. If last week's accident had not occurred, I wonder whether a disagreement would still exist. We need to explore that further. How many other NTSB warnings here ignored by the FAA? We need to look fully and carefully at the investigatory practices and procedures of the FAA and the NTSB. We need solutions. Aircraft safety should not be jeopardized by bureaucratic gridlock," said Pressler.

In related actions, On Monday, April 26, 1993, Pressler contacted the FAA to learn:

- Why the agency rejected the NTSB requests to inspect the Hartzell propeller assemblies; and,
- How the FAA determines its investigatory criteria and procedures.

On Wednesday, April 28, 1993, Pressler urged Secretary of Transportation Federico Peña to review the interaction of the FAA and NTSB on safety issues.

"I am introducing legislation to break this bureaucratic gridlock," said Pressler. "Aircraft safety must be our overriding concern. My legislation will restore the government's effectiveness preventing small aircraft accidents."

Pressler's legislation would:

- Establish a National Commission to study current investigatory procedures and practices of the NTSB and the FAA with respect to small aircraft safety.
- Require the Commission to report to the President and Congress how to fully utilize the investigation and enforcement resources of the NTSB and the FAA.

On Friday, April 30, 1993, Pressler will meet with FAA and NTSB officials to review interagency investigatory practices. Pressler will report on the meeting at 1:00 p.m. in S-325 of the Capitol.

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PRESS RELEASE—PRESSLER INTRODUCES BILL TO END AIRLINE SAFETY INTERAGENCY GRIDLOCK: ANNOUNCES AVIATION HEARINGS—APRIL 29, 1993

WASHINGTON, DC.—"The crash of a Mitsubishi MU-2 aircraft that killed Governor George Mickelson and seven other South Dakotans revealed a paralyzing gridlock between the federal agencies charged with small aircraft safety," said Senator Larry Pressler, ranking member of the Aviation Subcommittee of the U.S. Senate Commerce, Science and Transportation Committee. "Today, I am introducing legislation to break this gridlock. Aircraft safety should be our overriding concern. My legislation would restore the government's effectiveness to prevent small aircraft accidents."

Pressler's legislation would:

- Establish a National Commission to study current investigatory procedures and practices of the National Transportation Safety Board (NTSB) and the Federal Aviation Administration (FAA) with respect to small aircraft safety.
- Require the Commission to report to the President and Congress on how to fully utilize the investigation and enforcement resources of the NTSB and the FAA.

Pressler also announced the Aviation Subcommittee will hold hearings on the aircraft crash within the next two weeks.

"For more than three months the NTSB and the FAA disagreed over how to proceed in investigating the Hartzell HC-B4 propeller assemblies. How often does this

kind of disagreement occur?" asked Pressler. "Can the NTSB seek a 'second opinion' if the FAA's response is unacceptable? Should such a process exist? These are questions that deserve answers. We should do all we can to ensure that additional lives are not lost needlessly. Effective enforcement of small aircraft safety can only occur if the NTSB and the FAA prevent aircraft crashes, not respond to them."

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PRESS RELEASE—PRESSLER MEETS WITH FAA AND NTSB OFFICIALS—APRIL 30, 1993

WASHINGTON, DC.—Today, Senator Larry Pressler and the other members of the South Dakota Congressional Delegation met with officials from the Federal Aviation Administration (FAA) and National Transportation Safety Board (NTSB) in Pressler's Washington office. Pressler called the meeting to learn more about an April 19th plane crash that killed eight South Dakotans, including Governor George Mickelson.

"What can we learn from this tragedy?" asked Pressler. "Did the NTSB and FAA fail in their duties? All the facts are not in but on the surface it appears it took the plane crash to get action from the FAA," said Pressler. "I am not satisfied that current procedures are getting the job done to ensure small aircraft safety. We need to make sure that the agencies can fulfill their duty to prevent tragedies rather than respond to accidents after the fact."

"The hearings in the Aviation Subcommittee will help get to the bottom of this problem. Also, I have introduced legislation to review these two agencies. Their procedures can be improved," said Pressler.

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PRESS RELEASE—PRESSLER DEFENDS SMALL AIRCRAFT LEGISLATION—MAY 5, 1993

WASHINGTON, DC.—U.S. Senator Larry Pressler (R-SD) today challenged recent claims by Representative James Oberstar (D-MN) and National Transportation Safety Board (NTSB) Chairman Carl Vogt that his small aircraft safety legislation threatens the independence of the NTSB. "From what I gather, Representative Oberstar and NTSB Chairman Vogt may not understand fully what my legislation would do. I am disappointed that both seemed to have jumped to conclusions without a full and detailed examination of my bill," said Pressler.

On April 29, 1993, Pressler introduced legislation that would establish a National Commission to Ensure Small Aircraft Safety. The Commission would have six months to study and report to Congress on the relationship between the NTSB and the FAA and their effectiveness in enforcing small aircraft safety.

"This legislation would not grant the NTSB regulatory authority over the FAA. My bill also would not make any changes in either the FAA or the NTSB," said Pressler. "Rather, it would create a blue ribbon panel of aviation experts to examine, in detail, the adequacy of NTSB and FAA investigatory practices and procedures with respect to small aircraft safety."

Pressler said the experts would make recommendations to Congress on how to best resolve disagreements among federal aviation investigatory and regulatory agencies responsible for small aircraft safety. "In short, my legislation would answer two simple questions: Is the process working? If not, how could the process be improved?" explained Pressler.

In a letter to Representative Oberstar, Pressler refuted assertions that he is trying to weaken the safety mission of the NTSB. "The NTSB was created as an independent agency to act as a check against FAA regulatory actions. What good is that check if recommendations made by the NTSB are ignored by the FAA?" asked Pressler. "I'm not necessarily advocating a change in regulatory authority. All I know is that the FAA admitted that it took the tragic crash in Iowa to get NTSB's safety recommendation accepted. If that is the case, something is wrong with the system!"

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PRESS RELEASE—PRESSLER URGES CLINTON SUPPORT FOR AIR SAFETY LEGISLATION—MAY 12, 1993

WASHINGTON, DC.—Senator Larry Pressler today urged President Bill Clinton to support legislation to promote small aircraft safety. Pressler met with Clinton at the White House today. Recently, Clinton expressed his interest and concern about the investigation of the plane crash that killed Governor George Mickelson and seven other South Dakotans.

"South Dakota appreciates your involvement and support," Pressler told Clinton. "The plane crash brought to light a potentially serious problem in the working relationship between the National Transportation Safety Board (NTSB) and the Federal

Aviation Administration (FAA). The NTSB had made several requests to the FAA for an investigation into problems with the type of propeller hub that failed on the Governor's plane. The FAA declined to investigate. Should the FAA have acted differently? is there a better way to respond to interagency disagreements? I introduced legislation that would create a commission to study these two agencies' investigatory practices and procedures. The commission would have six months to report its findings to Congress and make recommendations on how best to resolve any disagreements between the agencies."

"Your support would be a boost to the legislation. I look forward to working with you to ensure the safety of small aircraft pilots and passengers," Pressler told President Clinton.

Pressler also is setting up a hearing in the U.S. Senate Aviation Subcommittee to examine the relationship between the FAA and NTSB. Pressler is ranking member of the subcommittee.

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PRESS RELEASE—SENATOR PRESSLER BLOCKS FAA NOMINATION—MAY 14, 1993

WASHINGTON, DC.—"Upgrading safety and investigatory practices must be the first priority of the administrator of the Federal Aviation Administration (FAA). I will block the nomination of David Hinson to be FAA Administrator until I am completely satisfied that safety concerns will be a top concern," said Senator Larry Pressler (R-SD), ranking member of the U.S. Senate Commerce, Science and Transportation Subcommittee on Aviation. "I usually don't cause problems with nominations, but I don't feel I have a choice. Public safety could be at stake. I cannot be complacent."

Investigations into the April 19th plane crash near Dubuque, IA, that killed South Dakota Governor George Mickelson and seven other South Dakotans revealed a potentially deadly form of gridlock between two federal agencies, the FAA and the National Transportation Safety Board (NTSB). The NTSB repeatedly contacted the FAA urging an investigation into fatigue cracking problems with Hartzell HC-B4 propeller hub, the same hub assembly that cracked and failed on the Governor's plane.

"We need to look fully and carefully at the investigatory practices and procedures of the FAA and NTSB. We need solutions. The next FAA administrator must dedicate himself to find answers. I need to know that it won't take lost lives to force enforcement of aircraft safety," said Pressler.

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PRESS RELEASE—PRESSLER: FAA MUST PUT SAFETY FIRST—MAY 19, 1993

WASHINGTON, DC.—"From the moment I heard about the tragic crash in Dubuque, IA, one question has haunted me: Could this accident have been prevented?" Senator Larry Pressler (R-SD) told the U.S. House of Representatives Government Operations Subcommittee on Employment, Housing, and Aviation. "As an elected representative, I feel it is my responsibility to get to the bottom of this bureaucratic maze. I have heard from many individuals who are worried the Federal Aviation Administration (FAA) may no longer put public safety first. I am appalled by reports of sloppy, lazy, bureaucratic work done by the FAA in the area of aircraft safety."

"The National Transportation Safety Board (NTSB) Chairman warned the Federal Aviation Administration (FAA) on more than one occasion that the failure of the HC-B4 propeller assembly 'could result in a catastrophic accident.' The FAA concluded a special investigation was not warranted," said Pressler. "Excuses for not investigating safety issues don't hold water when lives are put at risk."

Pressler is ranking member of the U.S. Senate Commerce, Science and Transportation Subcommittee on Aviation. The U.S. Senate Aviation Subcommittee will hold a hearing regarding the Iowa plane crash and the relationship between the FAA and the NTSB on May 27, 1993 at 9:00 a.m. in Room 253 of the Russell Senate Office building.

LETTER FROM SENATOR PRESSLER TO MR. DEL BALZO

APRIL 26, 1993.

Mr. JOSEPH M. DEL BALZO, *Acting Administrator,*  
*Federal Aviation Administration,*  
*Washington, DC 20591*

DEAR MR. DEL BALZO: As you know, last week the people of South Dakota suffered a great loss—the untimely death of Governor George S. Mickelson and seven other distinguished South Dakotans. They were killed when their small aircraft crashed. Initial investigations have indicated that the crash was possibly the result of a propeller assembly defect.

I have learned that the National Transportation Safety Board (NTSB) twice had contacted the Federal Aviation Administration (FAA), to urge the FAA to inspect the type of propeller assembly found on the Mitsubishi MU-2, the airplane model carrying Governor Mickelson and other South Dakotans. It is my understanding that the FAA rejected these requests. I would appreciate learning why the requests were rejected.

Also, I would be interested in knowing more about the FAA's investigatory criteria and procedures. How, for example, did the FAA arrive at the decision to deny the earlier NTSB propeller investigation requests? As you well know, uniform safety criteria and investigation policies at the FAA could avert aircraft tragedies. As ranking member of the Senate Aviation Subcommittee, I am interested in small aircraft safety issues and the investigative practices utilized by the FAA to ensure aircraft safety. In fact, I have requested that these issues be made a part of our Subcommittee's hearing agenda.

Specifically, please advise me as to the details of NTSB inquiries regarding the MU-2 aircraft and the Hartzell HC-B-4 propeller. Safety is an indispensable component of the aviation industry. Warning signs signaling potential air disasters, no matter how small or inconsequential, should be addressed in a timely fashion.

Thank you for your prompt attention to this matters.

Sincerely,

LARRY PRESSLER,  
*U.S. Senate.*

LETTER FROM SENATOR PRESSLER TO SENATOR FORD

APRIL 28, 1993.

The Honorable WENDELL FORD,  
*U.S. Senate,*  
*Washington, DC 20510*

DEAR WENDELL: I am writing to bring to your attention an important matter affecting small aircraft safety that warrants the Aviation Subcommittee's attention.

As you know, the people of South Dakota suffered a tremendous loss when the Mitsubishi MU-2 small aircraft carrying South Dakota Governor George S. Mickelson and seven other distinguished South Dakotans crashed last week. Initial reports indicate the accident possibly may have been the result of metal fatigue in the propeller assembly.

Since the accident, I have learned the National Transportation Safety Board (NTSB) previously had urged the FAA to issue an airworthiness directive requiring an across-the-fleet inspection of Hartzell HC-B4 propeller assemblies on MU-2 aircraft. The FAA concluded that an airworthiness directive was not required, and current propeller inspection and overhaul procedures were adequate. The NTSB remains convinced that a more thorough and expeditious inspection method is needed. Enclosed are copies of the correspondence from the NTSB and the FAA, which explains this issue in greater detail.

Regardless of which federal investigatory agency is correct, the situation I've described above is very troubling. Two federal entities have reached an impasse over how to best proceed on an aircraft safety question. Frankly, this is government gridlock of the worst kind, one that affects human lives.

I strongly believe that the Aviation Subcommittee should review the investigatory process of both the NTSB and the FAA, and seek solutions to resolve instances of administrative gridlock. Absent such a process, disagreements over aircraft safety are left unanswered indefinitely and lives are placed potentially at risk.

Ensuring the safety of all small aircraft travelers requires the effective and efficient utilization of the federal government's resources. For this to occur, full communication and cooperation between the FAA and NTSB are crucial. For these reasons,

I strongly urge that the Aviation Subcommittee conduct hearings to ensure this communication takes place.

Thank you for your attention to this important aircraft safety issue. I stand ready to work with you and the members of the Subcommittee on this and other issues of concern to the aviation community.

Sincerely,

LARRY PRESSLER,  
*U.S. Senate.*

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LETTER FROM SENATOR PRESSLER TO SECRETARY PEÑA

APRIL 28, 1993.

The Honorable FEDERICO PEÑA,  
*Secretary of Transportation,*  
*Washington, DC 20590*

DEAR MR. SECRETARY: The loss of eight distinguished and highly regarded South Dakotans, including South Dakota Governor George S. Mickelson, in a recent small airplane crash has prompted me to bring several issues to your attention. Specifically, I am concerned about federal investigatory practices and procedures for small aircraft.

On at least two separate occasions, the National Transportation Safety Board (NTSB) contacted the Federal Aviation Administration (FAA) regarding the Hartzell HC-B4 propeller assembly featured on Mitsubishi MU-2 aircraft—the same model aircraft that carried Governor Mickelson to his untimely death. In this correspondence, the NTSB urged the FAA to conduct full fleet inspections of Hartzell propeller assemblies as a result of an accident near Utica, New York.

However, the FAA concluded that a special investigation was not warranted. The NTSB found the FAA's response unacceptable. Regardless of which federal agency is correct, the situation I've described above raises several questions: How does the FAA determine which recommendations to pursue? Since the NTSB has no regulatory authority, what recourse does this agency hold when the FAA disagrees with its recommendations? Perhaps a third body is necessary to act when such disagreements occur.

Small aircraft safety investigatory practices and procedures should be examined. As Ranking Member of the Senate Aviation Subcommittee, I have contacted Subcommittee Chairman Wendell Ford, requesting that hearings be held on this matter. Alleviating government gridlock that appears prevalent among federal entities responsible for the safety of our nation's pilots and passengers should be a top priority of the Administration and Congress.

Enclosed is a copy of the correspondence between the FAA and the NTSB regarding the Hartzell HC-B4 propeller assembly, as well as copies of my recent letters to Senator Ford and the FAA. I welcome your thoughts on how best to address this issue. I stand ready to work with you to ensure the safety of our aircraft. Thank you for your prompt attention to this matter.

Sincerely,

LARRY PRESSLER,  
*U.S. Senate.*

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LETTER FROM SENATOR PRESSLER TO MR. OBERSTAR

MAY 5, 1993.

The Honorable JAMES OBERSTAR,  
*U.S. House of Representatives,*  
*Washington, DC 20515*

DEAR MR. CHAIRMAN: It is my understanding that at a recent hearing on National Transportation Safety Board (NTSB) reauthorization in your Subcommittee, you raised a number of concerns regarding legislation I introduced on small aircraft safety. I appreciate your interest in this matter.

As you know, I introduced legislation last week which reflects my concerns with the relationship between the NTSB and the Federal Aviation Administration (FAA). Specifically, this legislation would establish a national Commission to Ensure Small Aircraft Safety. The Commission would have six months to study and report to Congress on the relationship between the NTSB and the FAA. This legislation would not grant the NTSB regulatory authority over the FAA. Rather, it would create a blue ribbon panel of aviation experts to examine in detail the adequacy of NTSB

and FAA investigatory practices and procedures with respect to small aircraft safety. Additionally, these experts would make recommendations to Congress on how to best resolve any disagreements among the federal aviation investigatory and regulatory agencies responsible for small aircraft safety.

In short, my legislation would attempt to answer two simple questions: (1) Is the process working? (2) If not, how could the process be improved?

I do not believe my legislation would weaken the safety mission of the NTSB. The NTSB was created as an independent agency to act as a check against FAA regulatory actions. What good is that check if recommendations made by the NTSB are ignored by the FAA? I'm not necessarily advocating a change in regulatory authority. All I know is that the FAA admitted that it took the tragic crash in Iowa to get NTSB's safety recommendation accepted. If that is the case, something is wrong with the system.

Again, I appreciate your interest in my bill. I've admired your work in the House and look forward to discussing this issue and many other aviation issues with you.

Sincerely,

LARRY PRESSLER,  
*U.S. Senate.*

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LETTER FROM SENATOR PRESSLER TO PRESIDENT CLINTON

MAY 11, 1993.

The PRESIDENT,  
*The White House,*  
*Washington, DC 20500*

DEAR MR. PRESIDENT: Recently, I learned of your interest in investigation of the small aircraft accident which killed South Dakota Governor George S. Mickelson and seven other distinguished South Dakotans. I appreciate your concern and commend your efforts to inquire into the details of the crash.

As you may know, I, too, have tried to find answers concerning this most unfortunate incident. In the past few weeks, I have written letters to the Federal Aviation Administration (FAA), Secretary of Transportation Federico Peña, Senate Aviation Subcommittee Chairman Wendell Ford, and House Aviation Subcommittee Chairman James Oberstar. Additionally, I have met personally with National Transportation Safety Board (NTSB) crash site investigators and FAA officials.

On April 29, 1993, I introduced S. 857, legislation that would establish a national commission to promote small aircraft safety. The Commission would have six months to study and report to Congress on the relationship between the NTSB and the FAA. Specifically, the Commission would examine in detail the adequacy of NTSB and FAA investigatory practices and procedures with respect to small aircraft safety. Furthermore, the Commission would make recommendations to Congress on how best to resolve disagreements among federal aviation investigatory and regulatory agencies responsible for small aircraft safety.

Finally, I am working with Senator Ford to schedule a Senate Aviation Subcommittee hearing to examine the relationship between the FAA and the NTSB. As Ranking Member of the Aviation Subcommittee, I feel that such a hearing is necessary to address how this unique relationship between these two Federal agencies affects our government's ability to effectively enforce small aircraft safety.

Again, thank you for your concern. South Dakota appreciates your involvement and support. I look forward to working with you to ensure the safety of small aircraft pilots and passengers.

Sincerely,

LARRY PRESSLER,  
*U.S. Senate.*

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LETTER FROM SENATOR PRESSLER TO PRESIDENT CLINTON

MAY 14, 1993.

The PRESIDENT,  
*The White House,*  
*Washington, DC 20500*

DEAR MR. PRESIDENT: It has come to my attention that you recently nominated David R. Hinson to be administrator of the Federal Aviation Administration (FAA).

As you know, last month's tragic accident in Dubuque, Iowa, which claimed the lives of South Dakota Governor George S. Mickelson and seven distinguished South

Dakotans has raised a number of questions in my mind regarding the safety policies and procedures of the FAA and the National Transportation Safety Board (NTSB). In fact, I have called for Congress and the Department of Transportation to conduct a thorough investigation of the working relationship between the FAA and the NTSB.

It is imperative that the next FAA administrator recognize the need to enforce small aircraft safety. At present, it would seem that the resources of the federal government are not being used fully and effectively to prevent aircraft accidents. As the Dubuque crash demonstrated, the FAA does not always approve NTSB safety recommendations. On at least three occasions\* the FAA ignored urgent warnings from the NTSB regarding the safety of the propeller assembly model—the same assembly used on the plane carrying Governor Mickelson. Just last March, NTSB Chairman Carl Vogt warned that the failure of the propeller assembly “could result in a catastrophic accident.”

As ranking member of the Senate Aviation Subcommittee, I intend to examine closely Mr. Hinson's nomination. I intend to discuss with Mr. Hinson these and other aviation issues before and during Senate Commerce Committee consideration of his nomination. If I am unsatisfied with his qualifications and commitment to address federal aircraft safety policy and procedures, I will place a hold on his nomination until such time that I am completely satisfied that safety concerns will be his top priority. I want Mr. Hinson's full assurance on this matter.

I look forward to working with your Administration to ensure that pilots and passengers receive the utmost security when traveling by air.

Sincerely,

LARRY PRESSLER,  
U.S. Senate.

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LETTER FROM SENATOR PRESSLER TO MR. HINSON

MAY 14, 1993.

Mr. DAVID HINSON,  
*McDonnell-Douglas Aircraft Corp.,*  
*Long Beach, CA 90846*

DEAR MR. HINSON: It has come to my attention that President Clinton has placed your name in nomination to be administrator of the Federal Aviation Administration (FAA).

As you may know, in recent weeks I have been outspoken in my criticism of federal enforcement of small aircraft safety policies. Last month's tragic accident in Dubuque, Iowa, which claimed the lives of South Dakota Governor George S. Mickelson and seven distinguished South Dakotans has raised a number of questions in my mind regarding the safety policies and procedures of the FAA and the National Transportation Safety Board (NTSB). In fact, I have called for Congress and the Department of Transportation to conduct a thorough investigation of the working relationship between the FAA and the NTSB.

The press reports of your nomination have been quite favorable, particularly with respect to your safety record as Chairman of Midway Airlines. Therefore, I am sure you agree that it is imperative for the next FAA administrator to recognize the need to enforce small aircraft safety. At present, it would seem that the resources of the federal government are not being used fully and effectively to prevent small aircraft accidents. As the Dubuque crash demonstrated, the FAA does not always approve NTSB safety recommendations. On at least three occasions, the FAA ignored urgent warnings from the NTSB regarding the safety of the propeller assembly model—the same assembly used on the plane carrying Governor Mickelson. Just last March, NTSB Chairman Carl Vogt warned that the failure of the propeller assembly “could result in a catastrophic accident.”

As ranking member of the Senate Aviation Subcommittee, I intend to examine closely your nomination. I would like to have the opportunity to discuss these and other aviation issues with you before and during Senate Commerce Committee consideration of your nomination. You should know that I have notified President Clinton of my intent to place a hold on your nomination until I am completely satisfied that resolving these safety concerns will be your top priority.

I look forward to discussing these matters with you in the near future. I wish you well during the confirmation process.

Sincerely,

LARRY PRESSLER,  
U.S. Senate.

MAY 14, 1993.

The Honorable BOB DOLE,  
U.S. Senate,  
Washington, DC 20510

DEAR BOB: As you may know, President Clinton yesterday nominated David R. Hinson to be administrator of the Federal Aviation Administration (FAA).

Last month's tragic accident in Dubuque, Iowa, which claimed the lives of South Dakota Governor George S. Mickelson and seven distinguished South Dakotans has raised a number of questions in my mind regarding the safety policies and procedures of the FAA and the National Transportation Safety Board (NTSB). In fact, I have called for Congress and the Department of Transportation to conduct a thorough investigation of the working relationship between the FAA and the NTSB.

I am sure you agree that it is imperative that the next FAA Administrator recognize the need to enforce small aircraft safety. At present, it would seem that the resources of the federal government perhaps are not being used fully and effectively to prevent aircraft accidents. As the Dubuque crash demonstrated, the FAA does not always approve NTSB safety recommendations. On at least three occasions, the FAA ignored urgent warnings from the NTSB regarding the safety of the propeller assembly model—the same assembly used on the plane carrying Governor Mickelson. Just last March, NTSB Chairman Carl Vogt warned that the failure of the propeller assembly "could result in a catastrophic accident."

As ranking member of the Senate Aviation Subcommittee, I intend to examine closely Mr. Hinson's nomination. I intend to raise these and other aviation issues with Mr. Hinson before and during Senate Commerce Committee consideration of his nomination. If I am unsatisfied with his qualifications and commitment to address federal aircraft safety policy and procedures, I will place a hold on his nomination until such time I am completely satisfied that safety concerns will be his top priority. I want Mr. Hinson's full assurance on this matter.

Sincerely,

LARRY PRESSLER,  
U.S. Senate.

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PREPARED STATEMENT OF JOHN W. OLCOTT, PRESIDENT, NATIONAL BUSINESS  
AIRCRAFT ASSOCIATION

I would like to thank Chairman Ford, Senator Daschle, and other Members of the Subcommittee, for the opportunity to present the views of the Members of the National Business Aircraft Association (NBAA) relative to the Subcommittee's consideration of general aviation safety and the performance of the Federal Aviation Administration and the National Transportation Safety Board.

NBAA represents the interests of over 3,200 companies which operate general aviation aircraft as an aid to business. NBAA Members earn annual revenues in excess of \$3 trillion—over 50 percent of the Gross National Product—and employ more than 16 million people worldwide.

Our Members participate in a form of transportation that not only is one of the most effective means of business travel available, it also is one of the safest.

On average, over the last five years, turbine aircraft flown by two-person, salaried crews had the lowest accident rate per 100,000 hours of flying in all of aviation. Along with the scheduled airlines, turbine-powered general aviation aircraft flown by professional crews for business travel offer passengers unmatched safety.

But the safety of flight is much more than just an impressive statistic. Without its high level of safety, aviation would not be a viable form of transportation. Speed and the ability to cross hostile terrain are not sufficient attributes to ensure the acceptance of aircraft as the preferred vehicle for mid- and long-range travel.

Without safety, flying would be mere novelty, reserved for show and excitement when not used as a weapon of war. Such statements are as true for general aviation used for business transportation as they are for the scheduled airlines.

Achieving this impressive level of safety took years of experience and considerable dedication by people of varied talents and disciplines. Dreamers schemed, entrepreneurs envisioned, researchers explored, engineers designed, technicians built, regulators questioned, mechanics maintained and pilots trained so that aviation could become the safest form of travel ever known in terms of accidents and fatalities per passenger-mile traveled.

Today, aviation is a sophisticated, multi-disciplined endeavor, with safety the common yardstick by which all participants ultimately measure their success.

In particular, general aviation offers businesses the potential for being its safest form of travel. Only with general aviation does the operator have maximum control over all the elements that affect safety. Company officials know who is flying the aircraft and how well he or she is trained and prepared for the flight. They know who the passengers are and what is being carried on-board. They know how well the aircraft has been maintained. They control dispatch and diversion in the event of unfavorable weather. All elements affecting safety are under the operator's control, with the possible exception of midair collisions which, as very rare events, are highly unlikely to occur with aircraft flown under instrument flight rules.

When an untoward event does occur, such as the rotor burst of the center engine of the United DC-10 or the suspected propeller failure of the MU-2-60 that unfortunately resulted in the untimely death of the governor of South Dakota, qualified safety investigators of the NTSB, the FAA and the appropriate manufacturers focus their considerable energies on determining probable cause and disseminating appropriate corrective measures so we can benefit from the misfortune of others. The system works well, as reflected in aviation's outstanding safety record.

While commercial aviation is highly disciplined and has achieved a truly impressive safety, no airline is able to provide its passengers the elements of control, and thus the assurance of safety, available to companies that employ general aviation for business transportation. Nor do other forms of travel offer such control. Certainly automobiles do not provide the assurance that your safe actions will keep you from being the victim of someone else's negligence or misfortune.

Professional crews flying turbine-powered aircraft are the most successful in capitalizing on general aviation's potential for safety. But that potential is available to all general aviation operators. All pilots can elect to train as conscientiously as those who fly turbine aircraft. Each aircraft owner can chose to maintain his or her equipment in accordance with manufacturer's recommended practices as well as to FAA requirements. We each can show the discipline to launch and continue flight only when weather conditions are consistent with our qualifications and equipment.

The use of general aviation for business travel—that segment we know as corporate and business aviation—has demonstrated the inherent safety general aviation. NBAA members can be justifiably proud of their impressive examples.

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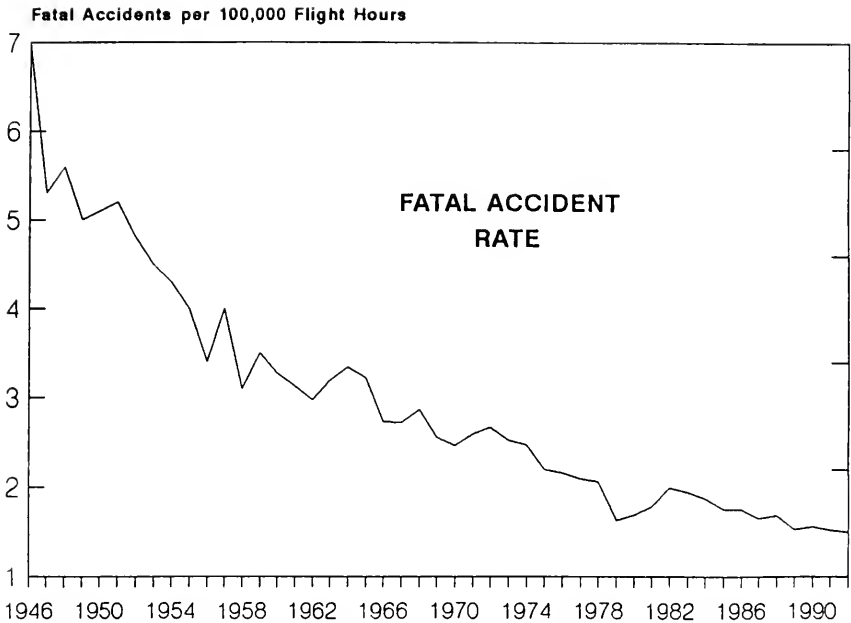
#### PREPARED STATEMENT OF EDWARD W. STIMPSON, PRESIDENT, GENERAL AVIATION MANUFACTURERS ASSOCIATION

The General Aviation Manufacturers Association (GAMA), representing 50 companies involved in the manufacturer of general aviation aircraft, engines, avionics and component parts has a strong interest in these hearings and the proposed legislation (S. 857) to establish a national commission to ensure small aircraft safety.

The accident and loss of life in the South Dakota accident is tragic. We trust that the ongoing accident investigation will identify the causes and prevent accidents of this nature in the future. We recognize, however, that the purpose of these hearings is not to investigate a single accident, but to examine broader safety issues. We welcome your efforts.

#### GENERAL AVIATION IS SAFE, AND BECOMING SAFER

Last year was the best year in history for general aviation safety. The total general aviation accident rate decreased to 7.19 accidents per 100,000 hours flown, and the fatal accident rate dropped to 1.50 (see attached chart). While we are encouraged by these declining accident rates, we continue working to lower them even further.



The decline in the general aviation accident rate began long before the current explosion in product liability litigation. Improving general aviation accident rates are due to the manufacturers and operators solid commitment to safety, not because of the recent flurry of product liability lawsuits. These lawsuits often have more to do with the perceived "deep pockets" of the manufacturer, and little to do with the real cause of an accident.

Safety is the number one concern of the manufacturers and entire general aviation community. Manufacturers build their products to strict government design standards, airplane production processes are carefully regulated, and general aviation pilots operate our products in accordance with procedures carefully prescribed by the Federal Aviation Administration (FAA). The FAA regulatory system, which has evolved over the years, has been, in large part, responsible for consistently improving the safety record of both commercial and general aviation. Outside the U.S., FAA aircraft certification is accepted as one of the best assurances of sound airplane design and manufacture.

#### HUMAN FACTORS CAUSE MOST ACCIDENTS

The FAA, National Transportation Safety Board (NTSB), and many other researchers have consistently noted that in nearly 80 percent of all general aviation accidents, human factors are the primary or a contributing causal factor. In most cases, accidents are caused by pilot error. It is no surprise, therefore, that the largest reduction in the accident rate can be achieved by improved initial and recurrent pilot training.

A thorough and accurate system of accident investigation is one of the best ways we come to understand what causes accidents. As manufacturers, we have worked diligently with the NTSB and the FAA to improve this process.

Manufacturers must remain an integral part of the accident investigation. Manufacturers have the most extensive, and often the only real technical expertise and knowledge about the cause of equipment related problems. Manufacturers are often the first to suggest and support possible Airworthiness Directives.

We are also currently working with the FAA and NTSB to improve the accident investigation checklist used by investigators to ensure a thorough investigation into the "human" side of an accident, including such issues as the training history of the pilot. As most accidents are caused by pilot error, we must better understand this problem if we are to continue improving our accident record. There is no question that the public benefits from the accident investigation process, and that our products have become even safer from the results these investigations.

## A NATIONAL COMMISSION IS NOT NECESSARY

Frankly, we do not agree that there has been "gridlock" between the FAA and NTSB. To the contrary, we have observed a highly cooperative relationship between the FAA and NTSB, with FAA assigning high priority to the proper disposition of NTSB safety recommendations. In the last five years, for instance, NTSB has recommended 35 Airworthiness Directives in 25 cases involving general aviation aircraft. In only one instance was the case closed with what the NTSB considered to be an unacceptable action by FAA.

Congress wisely established the NTSB as an independent agency in 1966 when the Department of Transportation was created. This independence was further strengthened in 1974 when Congress removed the NTSB's budget from review by the Office of Management and Budget (OMB). Congress purposely did not give NTSB regulatory power; this was left to the FAA. FAA's disposition of NTSB safety recommendations are a "best balanced" view, based upon the facts available. A duplication of regulatory authority could really cause gridlock between the agencies, and safety would suffer.

At times in the past, relations between the NTSB and FAA have not always been smooth. However in recent times, the relationship has been excellent. This positive relationship has generally started at the top with open and frequent communication between the NTSB Chairman and the FAA Administrator. When this relationship sours, it is often the general aviation industry suffers most.

While additional steps can be taken to improve general aviation safety, we believe S. 857 misses the mark. The challenge to improving general aviation safety rests in such areas as better pilot training and education, more accurate weather information and more timely dissemination, and increased use of aircraft safety equipment, such as back-up power supplies for aircraft instruments and "fool-proof" fuel caps which prevent misfueling.

The action envisioned under this Bill is not necessary. We do not believe there is a problem of sufficient magnitude to create a National Commission. If there were such a problem, the Secretary of Transportation and the NTSB Chairman should be directed by this Subcommittee to sit down and work it out. We would be glad to express our views and participate in the process.

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QUESTIONS ASKED BY SENATOR BURNS AND ANSWERS THERETO BY MR. DAVALOS

*Question 1. Technology—Low-cost Composite Industry*

Answer. The high-volume and low-cost composites industry has been successful in developing products for specific markets, where corrosion deterioration or electromagnetic interference are the primary concerns. However, these industries may not be able to develop the products needed in large-scale applications, because of insufficient operational capital, short-term investment policies, lack of scientific competence, and lack of a broad-applications vision. Most of the products developed by these industries have evolved through a trial-and-error process; in addition, there are certain limitations in their processing methods (e.g., pultrusion) that require a scientific approach before they can be used for large-scale member production. An example follows to illustrate this point.

Right now, a fiber-reinforced composite bridge deck can be produced and evaluated as a prototype structure. To overcome the processing limitations, the deck can be produced in modular sections; the sections can be assembled by properly engineered connections; a cost-competitive design is possible by using low-cost raw materials (e.g., glass fibers). What is required to make it happen? A drastic departure from the common way of doing research: to assemble an industry-government-academia team with the clear and specific goal to develop, test, build, and monitor a composite bridge deck in a given time-span. That is, the end-product should be the driving force and not the research for research-sake. By combining the talents of a multidisciplinary research team with industry know-how and government support and leadership, specific end-products can be realized in relatively short time-spans.

*Question 2. High-cost (defense-oriented) Composite Industry*

Answer. The defense-oriented composites industry has developed well-established technologies, particularly for space and defense applications. Right now, this industry has the ability and the potential to develop products for civil infrastructure. However, a major disadvantage of this industry is its lack of understanding of civil infrastructure needs and applications. These industries need to change their product-development philosophy from an integrated in-house approach to a diversified team approach, which is typical of the construction industry. There is no question that the success of the large composite materials industry in civil infrastructure hinges around a new market-vision that can be implemented through competent

leadership provided by experts in Civil Engineering. The new approach to product development should be driven by demonstration projects; the research and development needs should be addressed by a multidisciplinary team with the specific end-product in mind.

#### *Question 3. Funding*

Answer. To maximize the federal government's investment on advanced materials research, it is of utmost importance to change or modify the allocation of funding. This should be done with respect to two aspects: funding of research topics that can considerably improve our civil infrastructure problems, and funding of government-industry-academia teams to undertake comprehensive research, development, applications, and technology transfer efforts.

#### *Question 4. End-Product Oriented Research Topics*

Answer. A number of research topics are often purposely "tailored" to be funded within the civil infrastructure umbrella. Specifically, incremental research contributions in structural materials that have been studied for over 100 years will not alleviate our nation's infrastructure problem. For example, topics such as weldability of high-strength steels, corrosion protection techniques, high-strength concrete mixes, and other similar "material-oriented" studies, that may be of academic interest, will very likely not provide the answers to our infrastructure problem. On the other hand, topics such as modular construction techniques with conventional materials that will permit quick replacement of deteriorated structural components, in-depth understanding of durability of materials (e.g., concrete) and ways to prevent premature failure, and innovative construction techniques to overcome material deficiencies are the type of topics that warrant significant research funding.

Common to most of us are highway repairs that result in closing of traffic lanes and traffic congestions that last for several months and even years. A modular construction of bridges, for example, will permit removing and replacing the damaged component in a relatively short time—similar to changing parts in a car. It is very much known that reinforced concrete bridge decks (slabs) last only 10 to 15 years; what is the reason for such a short life-span? We simply do not fully understand the durability of concrete. Moreover, we seem to do very little to design concrete bridge decks differently as to prevent early deterioration; why is it that we do not implement new techniques to prevent, or alleviate, this problem? The technologies to overcome this problem, such as transverse prestressing of decks, are available, but we need to apply them to prototype structures to monitor the performance in order to implement them in the field.

With respect to fiber-reinforced composite materials, there are still a number of fundamental questions to be resolved. However, similar to conventional materials, the issue with respect to the civil infrastructure is the development of reliable structural components for specific applications. As stated earlier, a multidisciplinary team approach to research leading to demonstration projects and technology transfer must be considered.

#### *Question 5. Funding of Team-Approach Efforts*

Answer. In the context of the infrastructure problem, it is not efficient to support a multitude of fragmented and narrow research topics in composite materials. Rather, classes of end-products with significant potential for commercialization should be identified, and the research efforts to their implementation will naturally follow. In this effort, state and federal agencies, such as department of highways and FHWA, should be involved in the construction and monitoring of prototype structures. In general, this is a significant departure from the way we conduct research in the U.S.A., but it is not new. A good example is the Timber Bridge Initiative Program, funded by Congress in 1989 and administered by the USDA, Forest Service. New technologies for timber bridges, such as transverse prestressing, have been developed and implemented in prototype structures that are being monitored and evaluated (57 bridges in West Virginia). The technology transfer efforts of this program have been very positive and have resulted in the development of new standards that should be approved by 1994. Another example of a partnership approach is the Construction Productivity Advancement Research (CPAR) Program, US Army Corps of Engineers, December 1992, which is an industry-driven program in collaboration with research institutions.

Government programs to sponsor research on advanced materials for civil infrastructure should require the formation of industry-government-academia consortia to identify meaningful research topics that are driven by end-products and include technology transfer efforts. This is not to say that fundamental research topics should be neglected, quite the contrary, the USA must remain at the forefront of science and technology, but as far as the infrastructure problem is concerned, we should avoid piece-meal and disjointed research programs if we want to significantly improve the present condition and provide innovative future solutions.

#### *Question 6. Barriers*

Answer. As described in the testimony submitted to you on May 27, 1993, the principal barriers to the implementation of fiber-reinforced composite materials to infrastructure applications is the lack of well-documented performance records of facilities using these materials. Questions such as durability, fire resistance, long-term behavior under harsh environments, environmental concerns of smoke-toxicity and material disposal, and quality product reliability must be properly addressed based on sound research results or identified as research needs. Most engineers and builders are more concerned with these type of questions than with other inherent disadvantages of composites such as low stiffness, which can be overcome in the design process. However, once again, answers to most of these questions can be provided within comprehensive research efforts under demonstration projects. We must build some facilities to facilitate user acceptance of and confidence in composite materials.

There are numerous opportunities for using advanced composite materials, either alone or in combination with conventional materials. For example, the concrete decks resting on steel stringers of existing bridges can be replaced by light-weight, cellular composite decks; the decrease in self-weight of the deck can permit higher traffic loads, and given the non-corrosive nature of composites, the expected service-life should be significantly longer than concrete. Thus, we need to initiate a project with this end-objective in mind. Other applications are reinforcement and rehabilitation of concrete, reinforcement of timber beams for bridges and long-span roof structures, encasing of timber railroad ties (14 million timber ties are replaced annually). There is a need to develop a new family of efficient composite structural shapes; the current geometric configurations that mimic steel shapes are not efficient and do not utilize the advantageous characteristics of composite materials.

Other ways to promote the application of composite materials to infrastructure are the development of standard codes; however, this is not possible until and unless we build a significant number of structures. Therefore, research efforts culminating in demonstration projects must include technology transfer efforts, such as preliminary design, construction, and quality control guidelines for specific applications. Moreover, we must initiate advanced materials educational programs for engineering students and practitioners; after all, professional engineers knowledgeable of composite materials can comfortably accept and promote these products.

#### *Question 7. Aerospace-oriented Research Translated to Civil Infrastructure*

Answer. As stated in the testimony submitted to you before, the in-house integrated approach of product development used by the defense-oriented industry differs from the diversified product-standardization approach of the civil construction industry. However, current composite materials industries producing low-cost, mass-produced structural components have been successful in adopting the civil construction philosophy. The large aerospace-oriented composites industries have the technology and resources to develop the markets for large-scale components needed in infrastructure projects, but the expertise to develop a market-vision for specific applications is lacking, and this expertise can be provided by research institutions concerned with innovative materials applications for construction. By combining the market experience of the low-cost materials manufacturers with the technology and resources of the aerospace composites industry and the vision of civil/materials research centers, we can develop innovative solutions for the infrastructure problems. For example, we at the Constructed Facilities Center (CFC) of West Virginia University are currently engaged in a cooperative Army Corps-Industry-CFC research project under CPAR, which integrates small and large composites industries in the development of an on-shore platform (bridge). Thus, once again, the consortia approach to research, development, applications, and technology transfer appears to be the way of the future.

#### *Question 8. Training*

Answer. First, an educational program for civil engineers must be developed. Second, lower-level technical short courses and seminars for technicians, construction inspectors, and builders need to be developed. The educational process on advanced composite materials must start immediately at the undergraduate level in civil engineering schools. It is imperative that we start training our future work force immediately, and therefore, I would encourage the consideration of funding for the development of these courses under the NSF educational programs.

#### *Question 9. U.S. Competitiveness*

Answer. With respect to the commercialization of advanced composite materials, we are at risk of losing the national and international markets for composite products; note that we are by far the largest constituent composite materials (fibers, resins) producers in the world, and we certainly are ahead in most of the manufacturing technologies, such as mass-production by pultrusion, with respect to other coun-

tries. But, because of our industries' common practice of short-term investment policies and the incipient applications of composites in construction, we are not at the forefront of product development. We need to implement an industry-government-academia driven program leading to the development and implementation of application products that can serve as starting initiatives for the commercialization of products by industry. To accomplish this goal, it will be necessary to form government sponsored task groups to provide the necessary forum for the industrial implementation of research results.

*Question 10. Federal Government Role*

Answer. The federal government can serve as a catalyst to promote cooperative research and development work among industries. Interestingly, we at the CFC have been able to promote cooperation among material suppliers, manufacturers, and engineering firms on research projects leading to definite end-products with the potential of commercialization. Thus, it appears several industries can be willing to work together if there are clear common benefits at stake. Of course, this is not the common way of doing business in the US but government sponsored programs can promote cooperation by enforcing cooperative research programs driven by specific end-products. Based on an assessment considered specifically on project by project basis, we feel confident that a multidisciplinary team approach to research that is properly monitored can result in enormous benefits to the development and commercialization of advanced composites for civil infrastructure.

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